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HP Photosmart R707 Digital Camera With HP Instant Share

Take crisp, sharp photos at 5.1 MP resolution for outstanding prints and enlargements up to poster-size with the HP Photosmart R707 digital camera. Capture moments near or far with 24x total zoom—3x optical, 8x digital—and 10 shooting modes. Exclusive HP Adaptive Lighting, when enabled, reveals details in shadowed faces or in the background of high contrast photos. In-camera red-eye removal eliminates red-eye without additional flashes or software touch-ups. Learn to take great photos with the least amount of effort with HP Image Advice.

Snap a photo and select on the camera where it will go the next time you dock or connect to the PC using HP Instant Share—the easiest way to send photos via e-mail without burdening the receiver with large attachments. On-camera manual controls allow you to adjust the camera for more creative photos. Optional dock charges two lithium ion batteries (in-camera and included spare) and enables digital photo slide shows on TV with a remote.

HP photo software included: Complete digital photography tasks with easy-to-use HP Image Zone. Create your own digital photo slide shows and view on a PC or TV and DVD player with HP Memories Disc Creator Software (cd-writer not included, purchase separately). Works easily with USB compatible PC and Mac.

Crisp, clear photos for great prints—HP's 5.1 MP camera features exclusive HP Real Life technologies. ■

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HP Photosmart R707 digital camera

Great photo features

- Adjust and enhance your photos with manual controls and HP-exclusive settings.
- Stylish and durable, brushed stainless steel construction with ergonomic grip.
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- 32 MB internal memory, plus SD card slot for added capacity and easy sharing.
- Includes rechargeable lithium ion battery and recharger.
- Easily print photos—without a PC—directly from your camera to HP Photosmart printers and select HP all-in-ones via included USB cable or with a memory card (the camera supports PictBridge for worry-free photo printing)

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To learn more about the entire Philips FlatTV™ line, visit www.flattv.philips.com

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True-To-Life 4 x 6 Photos

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Big, 2.5-Inch Image Display

- Preview, select, and enhance photos before you print.
- Adjustable 2.5-inch flip-up image display and buttons make it easy to rotate, crop, zoom, and fix red-eye on photos and digital camera video clips and delete unwanted shots from memory cards.

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HP Photosmart 375 Compact Photo Printer

Photos With Or Without A PC

- Print 4 x 6-inch color photos with or without your computer using camera memory cards[1] or direct print with the front USB port and PictBridge-enabled cameras.
- Print 4 x 6-inch color photos from digital camera video clips. Use your camera's memory card and the printer's large, adjustable 2.5-inch color image display to view, select, and print a nine-photo sequence or a single digital video frame.
- Print photos from camera phones or other Bluetooth® wireless technology devices.[2]

Mobile Printing

- True portable printing-print photos on-the-go with optional HP rechargeable internal battery—enough power to print up to 75 photos![3] Lightweight battery fits inside printer; use printer's included power cord to recharge battery in the printer.
- Use HP Car DC Power Adapter to print or recharge printer battery in your car.[4]
- Carry your printer, ink, supplies, and more with HP custom carrying case; not included, sold separately.

Print Photos Quickly

- Why wait for your pictures? Capture every image-as it happens-with HP Photosmart's fast, true-to-life color photos you print and share in about 60 seconds.[5]

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- HP SureSupply™ notifies you when it is time to replace your print cartridge and helps you purchase locally or via the internet.[6]

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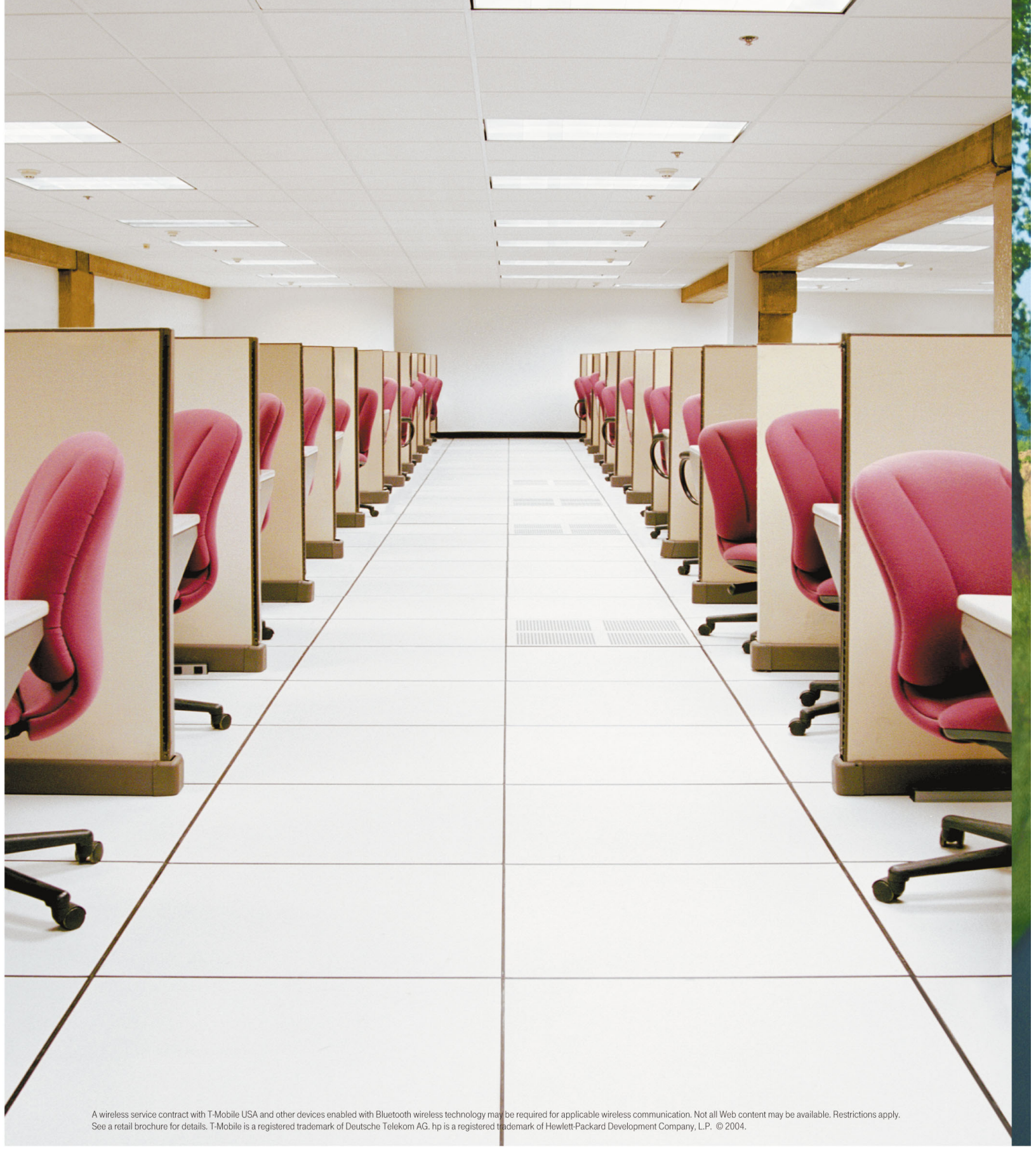
2 Supports camera phones with Bluetooth® wireless technology. Visit www.hp.com/support/bluetooth for a list of compatible devices
3 HP Internal Battery for HP Compact Photo Printers, not included; sold separately. Number of prints per charge may vary based on usage patterns, size of files, printer configuration, and type of ink cartridge.
4 HP Photosmart Car DC Power Adapter and HP Internal Battery for HP Compact Photo Printers not included; each sold separately.
5 When printing with borders from a computer.
6 Only available with genuine HP supplies; internet access required.



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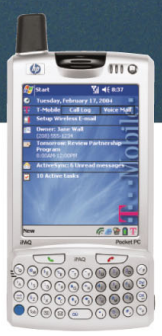

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DV PHOTO PLUS
DIGIC DV • PRINT & SHARE

Let's start with the first thing you should know. DV Photo Plus refers to the four key technologies that give you both premium-quality video and photos from a single camcorder. And assuming that's not everything you wanted to know, here's the rest.

GENUINE CANON OPTICS

All Canon Mini DV camcorders feature high-precision lenses designed specifically for camcorder use. But did you know that each of our camcorders has a unique lens that matches its CCD for optimum quality? Or that our camcorder lenses are made with the same expertise used to create lenses for professional photographic cameras and broadcast TV cameras? That's surely worth knowing. Especially since your fabulous home videos will undoubtedly be broadcast to your friends and family during holidays and get-togethers.

MEGAPIXEL CCD IMAGE SENSOR

No matter what you're shooting, you'll get crisp images with life-like detail because of this Megapixel CCD. First it captures the image. Then it registers it. And then the image processor converts the pixels into both great video and great photos. Now, on to the brains of the operation.

DIGIC DV IMAGE PROCESSOR

DIGIC DV is your camcorder's digital brain; you'll find one in every Canon Mini DV camcorder. This exclusive image processor captures accurate color for both video and digital photos. And like the human brain, DIGIC DV will help

TO KNOW ABOUT DV PHOTO PLUS. HEARD OF DV PHOTO PLUS.

you take better pictures by heightening the emotion in everything you shoot. (Colors become more vibrant, light more dramatic, and the color spectrum wider.) And, since video and digital photos have different color requirements, DIGIC DV uses two different color techniques to maximize video quality on a TV and optimize photo quality on a computer screen. You didn't know that now, did you?

PRINT AND SHARE

Print and Share makes it easy to print photos directly to a printer or to transfer images onto your computer. Simply connect the camcorder to any Canon printer or PictBridge compatible printer, select an image and voilà: you can print it for your family and friends. It's almost like having your own private photo lab.

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SO THERE YOU HAVE IT

Everything you've always wanted to know about DV Photo Plus. Not just video and photos, the best of both.

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Mini DV

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HP Media Center m1090n Photosmart PC

This PC is the ultimate entertainment center specifically designed for your digital photography needs. Plus, all your music, photos, videos, and TV programs are accessible from your couch with the included remote!

- Use HP Image Zone Plus software to store, edit, share, and print your photos. The HP camera dock holder integrated into the chassis provides the perfect location for your HP camera dock.
- Take control of your TV! Pause, rewind, and fast-forward live TV and program the PC to record a single episode or entire series of your favorite shows. The TV Personal Video Recorder (TV/PVR) allows hassle-free live TV recording with no monthly fee.
- Perform digital magic with InterVideo WinDVD Creator software—edit and add music or special effects. Downloading video is quick and easy with the front-access FireWire port.
- You won't believe your ears when listening to the Intel® High Definition Audio with up to 7.1 surround sound capabilities.
- The HP Personal Media Drive bay is the convenient way to add high-speed storage for your digital photos, music files, and TV shows.

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HP f2304 23" High-Definition LCD Flat Panel Monitor

Enjoy incredible visual quality and performance with this giant (23"), slender (4" deep) display! This high-definition, HDTV-ready LCD monitor elevates your viewing of applications, photos, games, and more to new heights. The perfect companion to an HP Media Center PC!

- **Create your own home theater:** the widescreen format enables optimum movie viewing; watch in HDTV format from an external DVD player or HDTV tuner*
- **View PC and audio visual material simultaneously** with the Picture-in-Picture technology
- **Enjoy uncompromised performance** for digital photography, video editing, and games with enhanced scaling and optimization plus blazing-fast 16 MS response time
- **See everything in total clarity** with the high definition that supports a whopping resolution of 1920 x 1200 and 16.7 million colors; view razor-sharp video from your PC and external HDTV sources
- **Expand your usable work area** by comfortably displaying two full pages of text or Web images side by side on the monitor (made possible by the ultra-high resolution, which is 175% greater than a typical 19" LCD monitor and 230% greater than typical high-definition 23", 30", and 42" televisions!)
- **Revel in premium sound** with spatial separation via the integrated stereo speakers; listen privately with the integrated headphone jack
- **Save space on your desk** with the small footprint
- **Use in the kitchen or bedroom** by mounting on a wall (compatible with VESA standard mount)
- **Complement the look** of your HP Media Center PC with the platinum-blue bezel
- **Keep things tidy** with the connector cover plus built-in power supply
- **Enjoy enhanced connectivity** with computer video inputs for VGA and DVI, plus illuminated TV inputs for Component and S-Video—ideal for an external DVD player or HDTV tuner

* HDTV tuner or DVD player sold separately

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Open

There's always something new happening in the world of consumer electronics. That's why the Open section packs the latest electronics news and trends into the first few pages of CE Lifestyles, along with quick looks at new and exciting products and a few products most of us can only dream about.

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A/V Club

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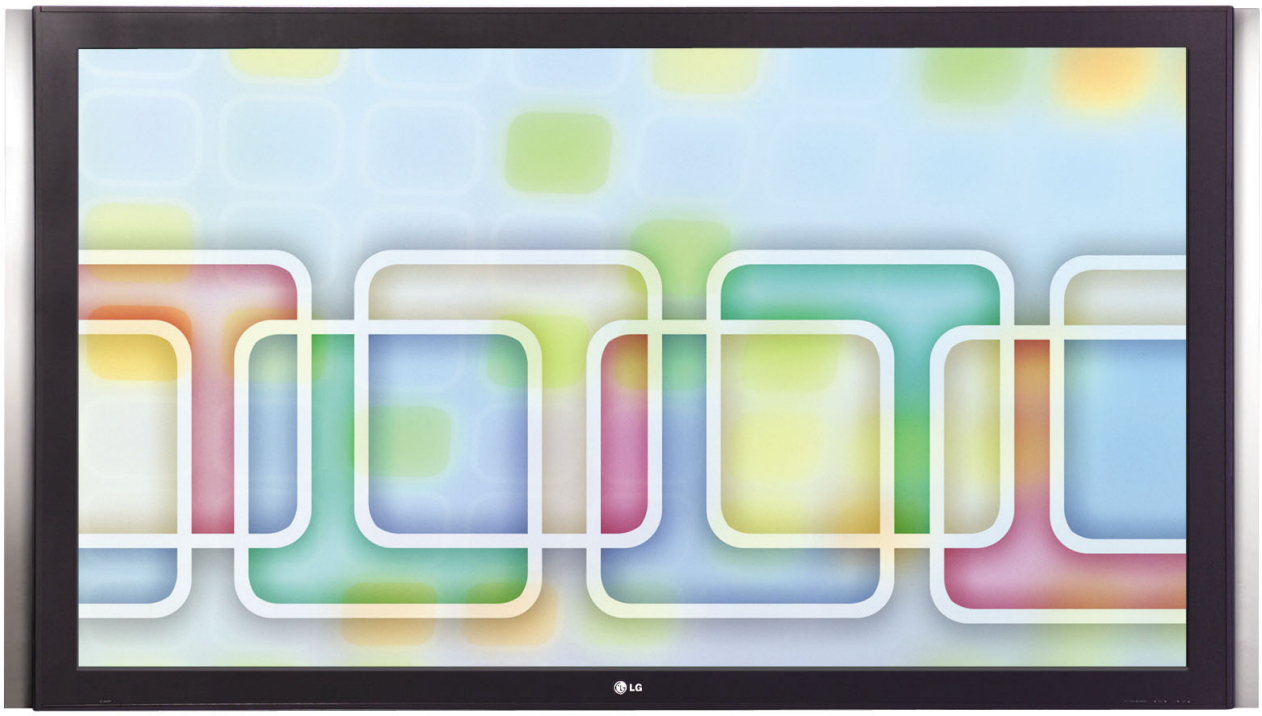


LG MW-71PY10 71” Plasma Display

Push The Home Theater Envelope

The first plasma display panel (PDP) measured in feet, not inches, model MW-71PY10 boasts 1920 x 1080p resolution. Driven by LG's exclusive XD EngineTM, this 71-inch PDP displays crisp, brilliant HDTV images.

XD Engine technology takes low-resolution analog signals to near high-definition levels by minimizing distortion and noise while enhancing details and colors. The end result is a more film-like picture with truer colors and more realistic images. LG's XD Engine technology also is available in the company's new 42- and 50-inch PY10 plasma series models and all of its LCD (liquid crystal display) and Digital Light Processing (DLPTM)) televisions.

Advertisement

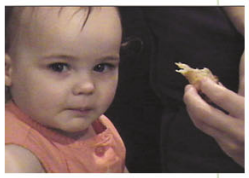
Screen Size And Features Combine To Create The Ultimate Home Theater Package

Warranty. A two-year limited warranty on parts and labor is standard with model MW-71PY10. One of the industry's most aggressive programs for PDPs, the warranty extends two years from the date of purchase and covers defects in material or workmanship under normal use.

Versatility. A variety of inputs include DVI+HDCP, HDMI, RS-232C and PC. Flexible PIP, split-zoom, and twin-picture features allows sub-windows to be moved, resized, swapped, and split into multiple windows (up to nine).

Model MW-71PY10 complements LG's extensive line of PDPs, which include models in screen sizes ranging from 42 to 71 inches.

LG Life's Good



lifestyle close-up

Digital Music Players

Thanks to the latest crop of digital music players, it's never been easier to take your music with you wherever you go. We got a few of the best new players on the market and spent some time figuring them out so you can pull yours out of the box and let the music take over.

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Digital Music Goes Mainstream

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75 The Evolution Of The Species
What's Next For Digital Music Players

Digital Studio

Digital cameras and camcorders are changing the way we record the moments of our lives, from quick snapshots of favorite vacation spots to priceless video clips of first steps and other important milestones. Get to know that new digicam or camcorder with help from Digital Studio so you don't miss a shot.

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ITS HERITAGE *Popular Science* called the original Bose Wave® radio "a sonic marvel." The *Chicago Tribune* said its sound was "superb." And *Forbes ASAP* magazine placed it on their "All-Time A-List" of technology breakthroughs that have changed the world. Now, the award-winning predecessor has been engineered to a new standard of performance, simplicity, and elegance.

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- It may well become the primary music system in your home.

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ITS NEW SIMPLICITY

- No buttons!
- It is completely and conveniently controlled by a small, elegant remote control.

ITS NEW ELEGANCE

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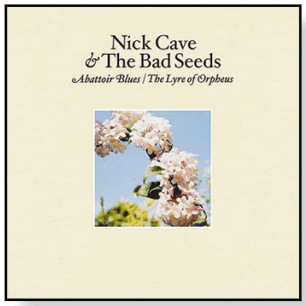

CE @Home

It's sometimes hard to remember what life was like before cell phones, PDAs, digital music players, and assorted other digital goodies came along. Now we're more connected, organized, and entertained than ever before, but we also have more batteries to charge, too—and more buttons and menus to keep track of.

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CE Lite

Sometimes, it's all about fun. When it's time to find the perfect escape or if you're in search of great gift ideas, come on in and see what's new in digital entertainment. Then stop by Retroscope for a look at how your favorite electronics products have changed over the years.

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Editorial Staff
editor@celifestyles.com
FAX: (402) 479-2104
131 W. Grand Drive
Lincoln, NE 68521

Subscription Renewals
(800) 424-7900
FAX: (402) 479-2193
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Advertising Staff
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Apple iPod + HP

What's The Apple iPod + HP?

It's an ultraportable digital music player that enables you to bring your entire music collection with you, wherever you go. It's the kind of flexibility you want—listen to music on the bus, at the gym, at work. No more lugging around a heavy bag of CDs. The iPod weighs just a few ounces (5.6 for the 20 GB model) and you can put 10,000 songs on it*. It comes with two storage capacity options: 20 GB or 40 GB.

*1 GB=1 billion bytes; actual formatted capacity is less. Capacity based on 4 minutes per song and 128-Kbps AAC encoding.

It's Fast.

Just plug it into your computer and with the help of a USB 2.0 connector, you can download your entire music library from iTunes at blazing speeds. Don't worry about keeping iTunes and iPod in sync—they sync up automatically when the iPod is plugged in.

It's Easy To Use.

The Click Wheel—an innovation in usability—makes it fun and easy to select playlists, scroll through artists, and choose the song you want without lifting your thumb.

It Sounds Great.

Designed to give you the best portable digital music experience possible, the iPod supports the most popular audio formats, including MP3 (up to 320 kbps), MP3 variable bit rate and WAV. The new Apple Lossless format lets you import music from CDs at highest quality for about half the space as uncompressed audio (AIFF). AAC features CD-quality audio in smaller sizes than MP3, so that even more songs fit on your iPod.

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ce news

BY TRACY BAKER

Disposable Digital

Pure Digital Technologies pioneered the concept of the disposable (or more accurately, one-time-use) digital camera with its barebones Dakota Digital, sold in Ritz Camera stores and various pharmacies, but it was a failure as a camera. Shoddy construction, expensive processing, and no LCD for framing shots or culling images made the camera overpriced, even at $11, but the company has gone back to the drawing board, and the result is a much-improved $19.99 successor.

The camera has actually been on shelves for a few months in test markets, but CVS/pharmacy recently announced that it will stock the device under the name CVS Digital One-Time-Use Camera with Picture Preview. That generic title pretty much sums things up—the new camera has a 1.4-inch LCD on the back that lets users conserve memory by previewing shots and deleting unwanted shots before they go to the lab. The camera has a 2.1MP (megapixel) sensor, stores up to 25 pictures, and has an automatic flash and self-timer. A cheaper $9.99 version, which CVS plans to sell under the name Digital One-Time-Use Camera with Delete Feature, is also available, but it doesn't incorporate the all-important LCD.

Sony Upgrades Digital Reality Creation Chip

Sony has developed a new microprocessor for TVs called the DRC-MFv2 (Digital Reality Creation Multifunction version 2). The electronics company says TV sets equipped with the chip will have dramatically improved picture quality and will be more adept at translating HD signals than sets with previous DRC versions. The new chip uses advanced algorithms that reshape incoming HD signals so that they more closely approximate the video subject's original signal. Sony claims that this results in HD video that is closer to the gloss level and fine texture detail of real-world subjects.

The chip supports resolutions as high as 1,902 x 1,080 (1080i [interlaced]) and can scale standard video feeds to HDTV resolutions. It's equipped with an advanced zoom feature that lets users blow up displayed video to three times its normal size without losing much detail. Zoomed or not, the chip also lets users pan and tilt displayed video. Look for the new chips to appear in Sony's next-generation WEGA HDTVs by the end of this year or the beginning of 2005.

Two For One With DualDisc

Early adopters of DVD players may recall "flipper discs" that divided movies into two sides of a disc and required users to turn the disc over partway through the movie. Those days seemed to be at an end thanks to dual-layer DVDs, but the controversial new DualDisc format offers a twist on the flipper disc.

DualDiscs contain CD data on one side and DVD data on the other. Record companies can use them to put an audio album on the CD side and music videos on the other, and movie studios theoretically could offer movies on one side and soundtracks on the other. Another possibility is putting standard CD audio on one side and putting a higher-quality DVD-Audio recording of the same material on the DVD side.

DualDiscs have been available in limited release since February, but the new format faces myriad legal pitfalls. German technology company DVD Plus International claims the new format violates patents the company holds pertaining to its similar DVD Plus format. Despite the pending legal issues, 5.1

Advertisement

LG KU-17WDVD 17" LCD TV

PC & HDTV Monitor With Built-In DVD Player

Built-in DVD Player—A vacuum load DVD player gives the KU-17WDVD a high-resolution video source without the hassle of external wires and connectors.

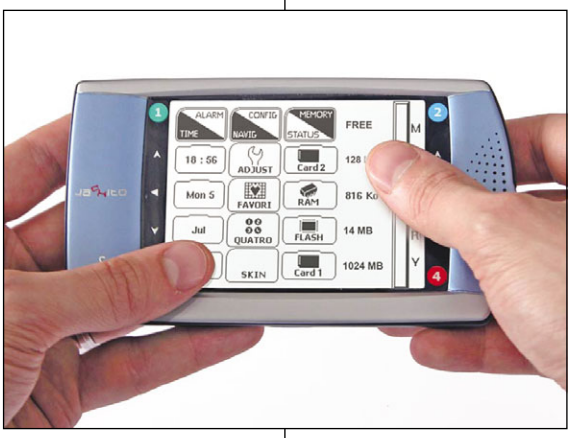
- **LCD Flat Panel**—Provides crystal-clear images with all signal sources and is also PC and video game safe.
- **Super IPS Technology**™—Reduces common distortion and blurring caused by fast motion video and also provides one of the industry's widest viewing angles (176º).
- **Advanced Connectivity**—Includes inputs for the most advanced components, which allows simultaneous PC interactivity while watching your favorite TV programming.
- **EZ Cable Management System**—Cables and jacks are concealed with a protective cover to reduce clutter.
- 1280 x 768p Resolution
- 176° x 176° Viewing Angle
- NTSC Tuner
- PIP/POP
- PC Input
- Built-in Speakers And Detachable Stand

LG Life's Good

Entertainment/Silverline Records, EMI Music, Sony BMG Music Entertainment, Universal Music Group, and Warner Music Group planned to have DualDisc offerings on retail shelves in October.

There's one additional catch on the consumer side: The new discs are a few tenths of a millimeter thicker than regular audio CDs. Although a survey conducted by the companies offering the new format claims that 82% of users during the test marketing period were satisfied with the format, the potential still remains for discs to jam when played in certain CD players. DVDs are thicker than audio CDs, so DVD players should have no trouble spinning the new discs.

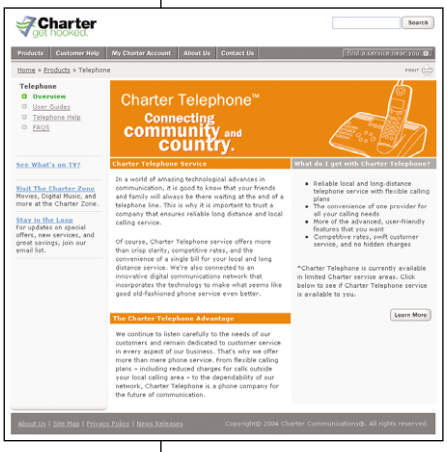
Toss Out Your Stylus—It's A TDA



PDAs and styli are like peanut butter and chocolate, right? Wrong. Take a look at Novinit, which is now selling the Jackito TDA (Tactile Digital Assistant; $600 and up; www.jackito.com). The front of the device is dominated by a big 4.5-inch LCD with a resolution of 320 x 240 pixels that operates in landscape mode, which is the opposite of the default vertical orientation used by most popular PDAs. Users grip both ends of the device and use their thumbs on the screen to navigate the interface, launch applications, and interact with programs. Icons are oversized so accuracy is not as important as is the case with a stylus-based PDA, and the LCD incorporates patented technology that lets it receive input from two points on the screen simultaneously.

The Jackito has a custom OS, so there currently are few third-party applications, but it has an extensive list of preloaded applications. It's also unique in that there are myriad customization options available from the factory. For more money users can upgrade the internal memory, add a color screen instead of the default black-and-white LCD, change the color of the outer shell, pick from several user interfaces, and opt for a slew of integrated upgrades such as an MP3 player, FM radio, or Bluetooth wireless hardware. The base model is expensive as is, and upgrades raise the cost to notebook-PC levels, so it remains to be seen if the TDA concept will catch on.

Trouble For The Telcos?

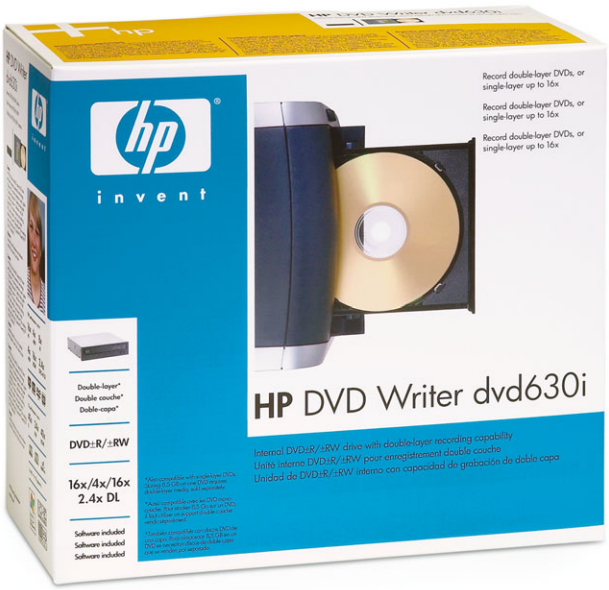


VoIP (Voice over Internet Protocol), the technology that lets users make phone calls over a data network (such as the Internet), is popping up in headlines everywhere as cable and other companies scramble to provide VoIP services to their customers. Charter Communications, which currently provides telephone service to more than 31,000 of its cable customers, recently inked a deal with Level 3 Communications and Sprint Communications to greatly expand the reach of its VoIP service. ISP Covad also recently launched a business-class VoIP service, and most other cable companies and ISPs offer or plan to offer VoIP. Even Nintendo has claimed its upcoming Nintendo DS, which will have integrated wireless networking, will let users make free phone calls from wireless hotspots via VoIP.

What does this mean for consumers? Bill consolidation is a plus, as customers can get their cable, telephone, and Internet bill from one company. VoIP is also digital, so sound quality tends to be terrific compared to analog lines, and companies are able to use the digital connection to offer a vast number of telephone-related services for very little money.

Don't drop your landline just yet—VoIP is not for everyone. Users must live in an area served by broadband Internet access, and the VoIP provider may have to come to your home or business to conduct a VoIP assessment to make sure quality of service is passable in your location. VoIP sometimes involves buying or leasing additional equipment, and your phone service may be lost during power outages that have no effect on a traditional analog phone line, so read the fine print before signing up.

Advertisement



HP DVD Writer dvd630i

HP's latest DVD writer with double-layer recording capability lets users preserve, edit, and share up to 8.5 GB on one disc and quickly store, back up, and transport files on DVDs and CDs. It records double-layer DVDs at up to 2.4x and single-layer DVDs at at up to 16x. Now it's easy to archive family photos, home videos, and more on high-capacity digital media.

More Storage

Now you can store up to 8.5 GB of data, video, music, and more on one double-layer disc. That's almost twice as much as single-layer DVDs hold. More photos, more video. Easily archive your family pictures and home videos on high-capacity digital media.

More Creativity

Full software suite included—edit video, organize photos, create slideshows, back up music and data, and more. Surprise your family and friends with slideshows and home movies, digitally preserved on DVD or CD and ready for playback.

More Compatibility

Excellent playback compatibility on DVD drives and players. Record hours of video onto DVD with your PC, and then play it back in your living room.

More Versatility

Dual-format drive writes to DVD± R/± RW (as well as CD-R/RW). HP delivers the best-selling formats and leading-edge double-layer technology with the HP DVD Writer dvd630i. Built to endure, digital discs outlast videotape.

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marketplace

Gaming May Fuel Future Mobile Device Revenue

Think gaming is a niche market? Not gaming on the go, according to a recent report from In-Stat MDR. The company predicts that mobile gaming services will generate more than $1.8 billion in revenue by 2009, accounting for 4.4% of total wireless data revenues. The company also expects that 78.6 million wireless subscribers will play games on their mobile devices by 2009.

Tech Prices Plateau

Prices for consumer electronics have leveled off after a five-month period of gradual decline, according to the latest research from the NPD Group. The company tracks the price of a "market basket" of consumer electronics goods spanning 27 categories. Prices in 11 categories rose from levels published in May 2004, while only three categories experienced an overall decline in price over the same period. Report highlights include:

802.11g wireless hardware prices fell 10.3%, the most of any category.

Blank DVD prices fell 8% and now cost an average of $18 for 10 discs.

32-inch direct-view HDTV prices fell to below $900 for the first time ever—representing a decline in price of nearly 33% in the past year and a half.

Portable and recordable DVD hardware prices rose 4% compared to May prices but have fallen 9% overall since the beginning of 2004. Portable DVD player prices have fallen 36%, and DVD recorder prices have fallen 45% since January 2003.

tidbits

Only 9% of mobile phone users have a smartphone, but shipments of the devices are expected to have compound annual growth of 44% over the next five years.

Source: In-Stat/MDR

Sony's latest Memory Sticks have faster read/write speeds and are available in capacities up to 2GB.

Source: Sony

Philips recently introduced "All Speed" DVD+R media, which allow for recording speeds ranging from 1X to 16X.

Source: Philips

Sprint PCS has rolled out technology that lets video stream to phones at up to 15fps, about half the frame rate of a TV signal.

Source: Sprint PCS

VOOM, the satellite service that focuses on delivering dozens of HD channels, reported it had 25,000 subscribers by the end of June 2004.

Source: VOOM

Samsung unveiled its new Vixlim technology in July 2004 that crams a conventional CRT (cathode-ray tube) into less than half the typical thickness, letting CRTs compete with flat-panel devices, such as LCDs, in terms of depth.

Source: Samsung

Sony's next-generation console system, the PlayStation 3, will use Blu-ray discs that store up to 50GB of data, providing game designers with more storage than ever before.

Source: Sony

Advertisement

LG DU-42PY10/H 42" Plasma TV-Integrated HDTV

PLASMA. To fit every lifestyle.

LG's cutting edge line of plasma displays provide the ultimate viewing experience.

The DU-42PY10/H boasts LG's XD Engine, which takes the low resolution of analog signals to near-HD levels by improving brightness, contrast, and detail and enhancing color, as well as reducing signal noise.

This HDTV includes a cable tuner that allows reception of digital cable programming without the need for an external cable box and includes inputs for the most advanced components which allows simultaneous PC interactivity while watching your favorite TV programming.

(Available in DU-42PY10H for high altitudes.)

- 1024 x 768p Resolution
- 5000:1 Contrast Ratio
- 1000 cd/m2 Brightness
- PIP/POP/Double Window
- DVI With HDCP Input
- PC Input

LG Life's Good

BY GREGORY ANDERSON

shelfwatch

Fall is in full swing, and the time is right for early holiday shopping. Whether you're buying for yourself or others, you'll find plenty on the shelves to get excited about.

HP iPaq Pocket PC h6315

$599.99

www.hp.com

A T-Mobile exclusive, HP's most connected iPaq ever provides access three ways. The GSM/GPRS (Global System for Mobile Communications/ General Packet Radio Service) connection provides voice and data service over T-Mobile's network nationwide. Integrated Wi-Fi and Bluetooth connectivity provide LAN (local-area network) and PAN (personal-area network) access wherever you go (including T-Mobile HotSpots). And in areas with multiple networks, the i6315 switches automatically to the fastest connection available. As a Pocket PC device, the model runs normal PDA applications, too. This is one smart phone indeed.

Motorola A630

$300

www.motorola.com

Motorola's latest candy bar-sized phone pops open to reveal its steely-gray power within. This Bluetooth-enabled camera phone (with 4X zoom) sports a full QWERTY keyboard and landscape color display on the inside—perfect for gaming and messaging. The speakerphone and integrated email support (for POP3 [Post Office Protocol, version 3], SMTP [Simple Mail Transfer Protocol], and IMAP [Internet Message Access Protocol]) will remind you that you're supposed to be working.

Advertisement

LG DU-60PY10 60" Plasma TV-Integrated HDTV

LG's Exclusive XD™ Engine—Six distinct processes contribute to picture improvement. LG's XD Engine takes the low resolution of analog signals to near-HD levels by improving brightness, contrast, and detail and enhancing color, as well as reducing signal noise. This total solution results in cinema-like high-resolution images.

- **Digital Cable Ready**—This HDTV includes a cable tuner that allows reception of digital cable programming without the need for an external cable box.
- **Advanced Connectivity**—Includes inputs for the most advanced components, which allows simultaneous PC interactivity while watching your favorite TV programming.
- 1366 x 768p Resolution
- 5000:1 Contrast Ratio
- 1000 cd/m2 Brightness
- PIP/POP/Double Window
- DVI With HDCP Input
- PC Input

LG Life's Good

Earglove BlueVoice

$99.99 ($159.99 with adaptor)

www.fellowes.com

If you're tired of tangling with your hands-free set, slip on Fellowes' stylish new Body Glove Bluetooth headset. The Earglove BlueVoice's microphone automatically adjusts its volume based on position. The battery gives six hours of talk time on a charge, and the signal's good for 30 feet. BlueVoice also offers an adapter option for those without Bluetooth-enabled phones.

Sharp AQUOS GD Series

$2,999 to $8,999

www.sharpusa.com

Sharp's long-anticipated GD Series LCD high-def models have finally arrived. These sleek models have built-in HD tuners, CableCARD slots (for bypassing set-top cable boxes), and PC Card slots (for image and video storage). LCDs come in screen sizes from 26 to 45 inches, in both widescreen and 4:3 layouts. The GD4U models have speakers on either side; GD6U models have speakers below the screen. You're running out of excuses for putting off the move to a flat screen.

Advertisement

HP Pavilion zd7000 Widescreen Notebook PC Series

Desktop-like performance, stylish mobility and a brilliant widescreen display.

- Fast Intel® Pentium® 4 processor with Hyper-Threading Technology* gives you performance without compromise for Web browsing, computing, and entertainment.
- Get the most of DVD movies, photo slideshows, simultaneous applications, and more with the super wide, super bright, and super clear 17" display supporting wide viewing angle technology.
- HP Image Zone photo and imaging software makes it easy to find, organize, edit, share, print, protect, and store your photos and video clips.
- Windows® XP Home Edition 2004 delivers advanced computing, plus easy-to-use integrated digital entertainment—live and recorded TV, movies, music, photos, and radio—that you can enjoy when and how you want.
- Get fast and flexible playback with the best audio and video quality for Windows and the Web with Windows Media® Player 9 Series.
- Microsoft network cards provide secure wired/wireless access (sold separately).

* On select models (you can configure your own zd7000 notebook PC to get all of the most desired features).

hp invent

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Sony DCR-PC350 Handycam

$1,300

www.sonystyle.com

Sony's new DCR-PC350 camcorder weighs less than 1 pound and comes with a docking cradle for battery charging and connecting to a PC and/or TV via S-Video, AV, USB, or FireWire. The 3.3MP (megapixel) CCD (charge-coupled device) records to standard MiniDV tapes and Memory Stick Pro media cards. The 2.5-inch touchscreen LCD offers control right from the display. Talk about handy.

Panasonic DMC-FZ3

$399.95

www.panasonic.com

If you're less concerned with creating oversized printouts of your digital pictures than with powerful zoom controls, crisp images, and fast shooting, check out Panasonic's new digital camera. The DMC-FZ3 offers just 3MP (the 4MP and 5MP models run $499 and $599) but provides a 12X optical zoom, optical image stabilization, and quick processing. The result is a long lens that adjusts for your shakiness and is ready to shoot whenever you are.

Advertisement

HP dv1000 Series Notebook

The perfect blend of mobility, style, and performance, this notebook PC will become the center of your digital entertainment universe, whether you're home, at school, working, or on the road.

Become Truly Mobile

You may not even notice that you're carrying this lightweight, thin machine as you zip around town. It won't weigh you down, and for added freedom, it's also available with Intel Centrino mobile technology so you can stay in touch wirelessly.

See More Of Everything

The dv1000 series' 14" high-definition widescreen display brings your movies and photos to life with amazing color and clarity. While this notebook is actually as wide as standard 15" displays, it has the same form factor as a 12" display, so it takes up less space on your desk or in your briefcase. Even more impressive, its high resolution provides 25% more information than standard 15" XGA displays.

Get To The Good Stuff Fast

Bypass the standard Windows boot-up process with HP's exclusive QuickPlay software, which is installed on every dv1000! Go straight to watching a movie or playing music at the touch of a button.

Get Lightning-Fast Downloads Of Music, Photos & More

You'll forget you ever needed floppy disks to transfer files between PCs, printers, cameras, and other devices. The dv1000's integrated 6-in-1 digital media card reader, designed specifically for transferring photos, movies, and music, is compatible with xD digital memory, Secure Digital, MultiMedia, Memory Stick, MS-Pro Memory Stick ™, and SmartMedia cards. Simply remove the card from the other device and insert it in the dv1000's slot.

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extreme ce

when money is no object

COMPILED BY SEAN DOOLITTLE

Welcome to the column where "affordable" is a technicality. Weren't home equity loans invented for a reason?

Marantz RC9200 Color-Learning Remote Control With RF Extender

$1,200 • www.marantz.com
Gather 'round, control freaks. This little beauty consolidates your pile of remote controls into one full-color touchscreen with 8MB of onboard memory, and it gives you the ability to control components in other rooms. The unit ships with docking station and rechargeable batteries.

Sea Tel 5004 TV-At-Sea System

$18,695 • www.seatel.com
Just because you're rounding Cape Horn doesn't mean you shouldn't be able to watch this week's episode of "CSI." Fortunately, the Sea Tel 5004 marine antenna system can bring crystal-clear programming to your onboard TVs anywhere in the world a satellite signal exists. Add the optional complement of touchscreen units ($3,295 each), and everybody on the ship can watch what they want. 50-foot sport yacht not included.

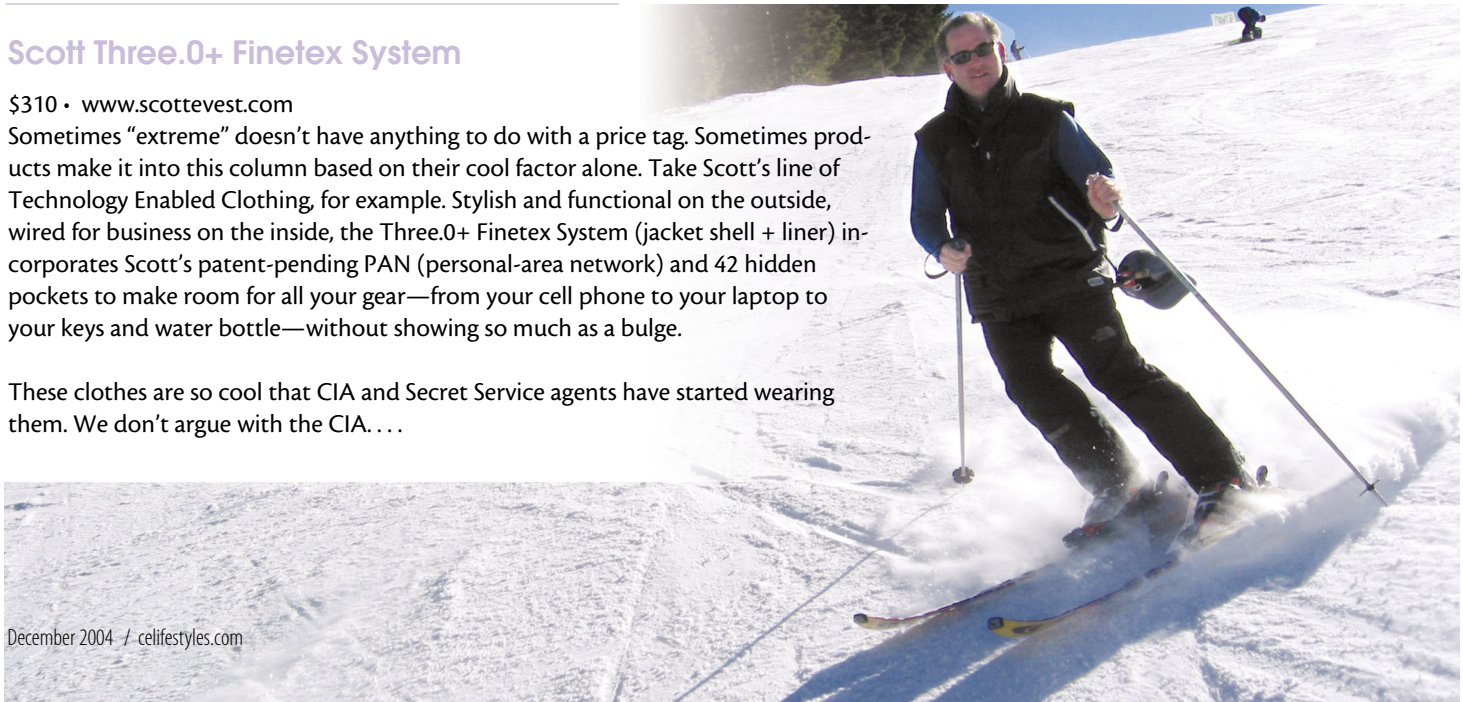
Samsung HPN6339 Flat-Panel TV

$17,999 • www.samsungusa.com
If you're going to have a plasma screen, you may as well have one of the largest plasma screens on the market. Look at Samsung's HPN6339: 63 inches of sleek, high-def goodness weighing in at a wall-mountable 190.7 pounds. Just make sure you find studs. Even when money is no object, you should never trust $18k worth of television to a few cents' worth of drywall screws. . . .

Scott Three.0+ Finetex System

$310 • www.scottevest.com
Sometimes "extreme" doesn't have anything to do with a price tag. Sometimes products make it into this column based on their cool factor alone. Take Scott's line of Technology Enabled Clothing, for example. Stylish and functional on the outside, wired for business on the inside, the Three.0+ Finetex System (jacket shell + liner) incorporates Scott's patent-pending PAN (personal-area network) and 42 hidden pockets to make room for all your gear—from your cell phone to your laptop to your keys and water bottle—without showing so much as a bulge.

These clothes are so cool that CIA and Secret Service agents have started wearing them. We don't argue with the CIA. . . .



Advertisement

LG DU-37LZ30 37" LCD TV

Integrated HDTV & PC Monitor

LCDs. As versatile as you are.

LG's versatile line of high-resolution LCDs is perfect for any room in your home or office.

This 37" LCD TV includes LG's exclusive XD Engine™, which takes the low resolution of analog signals to near-HD levels by improving brightness, contrast, and detail and enhancing color, as well as reducing signal noise.

Its built-in ATSC tuner allows the TV to receive over-the-air digital broadcast signals and unscrambled digital cable.

- **High Definition TV**—Built-in ATSC tuner allows this TV to receive over-the-air digital broadcast signals and unscrambled digital cable.
- **Super IPS Technology**™—Reduces common distortion and blurring caused by fast motion video and also provides one of the industry's widest viewing angles (176º).
- 1366 x 768p Resolution
- ATSC/NTSC/Clear QAM Tuner
- PIP/POP/Split Screen
- 1000:1 Contrast Ratio
- DVI with HDCP Input
- PC Input
- Built-in Speakers And Detachable Stand

LG Life's Good

Samsung HL-P5063W: how-tos

HL-P5063W 50" Widescreen HDTV
www.samsungusa.com
$3,499.99

Samsung incorporated Texas Instrument's DLP (Digital Light Processing) technology in its HDTVs, and its new 63-series sets now include third-generation DLP technology. We looked at the 50-inch HL-P5063W, a sleek and stylish television that offers up some of the most accurate and vibrant video available provided it's adjusted properly.

Out Of The Box

The TV is relatively light for its size, but you should ask for help lifting it out of the box and onto a stand. The main problem you face during this step is placing the set at an optimal viewing angle. Although the horizontal viewing angle is wide—you can sit far off to either side and still see a crisp, high-contrast picture—its optimal vertical viewing angle is shallow. If the center of the screen is 30 or more degrees above or below your normal viewing position, brightness suffers considerably. For example, if the set is too high, the bottom and middle of the picture will look fine, but you may think you see a dark band at the top of the screen. If you put this TV on a stand (sold separately), make sure the center of the screen is at your eye level (based on your eye level as you sit and watch the TV).

Now that the set's positioned, connect all of your video equipment to it, using the best connections possible for each device. This TV has a multitude of inputs, including two yellow composite video ports on the back (and one on the side), but they offer the worst possible video quality. Use composite ports only for devices with poor video quality, such as older game consoles and VCRs.

S-Video is a step-up in terms of quality, and you should use it instead of composite connections when you can. That is, unless your equipment supports progressive-scan or high-definition video output. The most common of these formats is component video, and this set has two component video inputs. They're full-bandwidth inputs that handle both progressive-scan and high-definition signals, and there's a good chance your DVD player and set-top box support component video output. It is easy to mix up the green (Y) and blue (Pb) component inputs when connecting cables, so make sure you can see the back panel clearly when you hook everything up.

Component video is nice, but it's an analog format. Some set-top boxes, HDTV tuners, and DVD players support DVI (Digital Visual Interface) or HDMI (High Definition Multimedia Interface) output, which carries pure digital signals. Use these connections when possible.

Remember to select customized picture control settings for each input that has a video device attached to it.

MCC (My Color Control) gives users at least some control over the red, green, and blue levels, but all users see to compare the various settings is the lame picture shown in the background here.

This TV has a standard VGA (Video Graphics Array) input, so you can use it as a computer display. If you do, set the PC to output video at a resolution of 1,024 x 768, which is not the TV's native resolution (and is not a widescreen resolution), but is the maximum resolution it can handle via the VGA connection. To change the resolution on a Windows computer, right-click an empty portion of the Desktop, click Properties, select the Settings tab, use the Screen Resolution slider to select 1,024 x 768 and click OK.

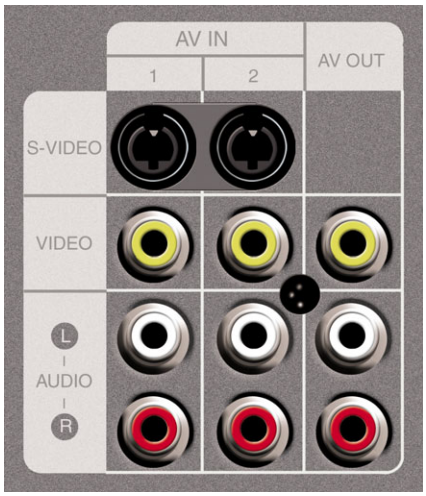
On the audio side, use standard composite audio cables to connect the stereo output of your audio and video devices to each white (left channel) and red (right channel) composite audio input port on the back of the TV. For example, if your DVD player is connected to Component Input 1, make sure the stereo audio cables from the DVD player are connected to the stereo audio inputs of Component Video 1.

Basic Calibration

Although the TV's menu is packed with options for performing rudimentary calibrations, we used test patterns from Ovation Multimedia's AVIA Guide To Home Theater ($49.99; www.ovationsw.com). You'll need to adjust brightness, contrast, sharpness, and other settings for each input. Keep in mind, that the settings we used may not be the best for your TV because of manufacturing variance. We used the Standard picture setting mode (Dynamic and Cinema are not recommended) and either the Warm 1 or Normal Color Tone setting (which establishes the input's overall color temperature) as we made adjustments.

As with most TVs, the contrast and brightness controls are reversed in the HL-P5063W. **Contrast** measures the black and white levels of a set, and **brightness** measures the intensity of each **pixel** (picture element), where more intensity translates to brighter and more saturated colors. To adjust the black and white levels, press the Menu button, select Picture on the left and Mode on the right, and press Enter. Select Contrast and press the left or right cursor on the remote to make this setting lower or higher. The goal here is to set the contrast as high as possible without causing **blooming**, a phenomenon where bright portions of the image (particularly white light) bleed into adjacent black portions of the image. On our test TV, settings between 35 and 45 looked best depending on the input.

Select Brightness and adjust the slider until black portions of the screen are as black as possible, but grays are still gray. A too-low setting turns gray black, so the picture is too dark and lacks detail. Setting the brightness too high appears to reveal more detail, but it turns pure black into a shade of gray that decreases contrast. We used settings between 35 and 50 on our test TV.



Here, you can see Composite and S-Video inputs. Use the black S-Video jacks whenever possible, using the yellow RCA jacks only as a last resort.

Most people set Sharpness too high because it appears to reveal more detail. It sharpens existing fine detail, but it also makes the rest of the images look grainy. Dropping Sharpness to 0 (zero) makes images look slightly fuzzy. Our TV looked best with low settings (15 to 25).

Color adjusts the saturation of on-screen colors, making video black and white at its lowest setting or absolutely garish at the highest. Our set's inputs looked best between 35 and 50.

Special Features

The HL-P5063W has a raft of advanced equipment and features that aren't necessarily beneficial. One is DNIe (Digital Natural Image Engine), a chip designed to sharpen and enhance video, which you enable in the Picture menu. We disabled this feature for our DVD player's input and noticed smoother, more film-like images. We enabled it for our set-top box and console game systems because video from those devices looked best with DNIe turned on. Experiment to see which setting looks best on a particular input, but note that Demo mode is worthless for making comparisons because it displays an exaggerated preview of the feature.

Turning on DNIe is the only way to enable the MCC (My Color Control) settings. MCC settings give you limited control over the display's red, green, and blue levels. If flesh tones look too sunburned, turn on DNIe, access the MCC menu, select Detail Control, push the Enter button, and reduce the Skin Tone slider. Use the Green Grass slider to adjust green levels, and the Blue Sky slider for blue levels (higher settings mean more vibrant color). Unfortunately, when you access the MCC settings, the TV outputs a shoddy test image that obscures test patterns and other video input so it's impossible to see the real-world results of your changes. Also, MCC changes apply to every input that uses MCC; you can't establish custom MCC settings for individual inputs.

Still Not Perfect

Even after calibrating the TV, you may notice a rainbow effect. DLP TVs produce color images by spinning a color wheel in front of the tiny mirrors that reflect light onto the back of the screen. These color wheels have improved with each generation of DLP, but they're not perfect. You may notice streaks of color that look like rainbows on the screen. This effect is most obvious on white portions of the screen that are in motion, such as a light bulb during a camera pan. Some people can see this effect and some can't; if you're in the former group you'll probably want to exchange the TV for one that uses LCD or another technology that doesn't use a color wheel.

BY TRACY BAKER

LG DU-42LZ30 42" LCD TV

Large-screen liquid crystal display (LCD). Integrated HDTV. The fastest response times. The widest viewing angles.

LG's DU-42LZ30 is ideal for any setting in your home.

The DU-42LZ30 boasts LG's XD Engine, which takes the low resolution of analog signals to near-HD levels by improving brightness, contrast, and detail and enhancing color, as well as reducing signal noise. This total solution results in cinema-like high-resolution images.

- The DU-42LZ30's built-in ATSC tuner allows this TV to receive over-the-air digital broadcast signals and unscrambled digital cable.
- LG's Super IPS Technology™ reduces common distortion and blurring caused by fast motion video and also provides one of the industry's widest viewing angles (176°).
- 1366 x 768p Resolution
- 176° x 176° Viewing Angle
- ATSC/NTSC/Clear QAM Tuner
- 2-Tuner PIP/POP/Split Screen
- 1000:1 Contrast Ratio
- DVI With HDCP Input
- PC Input
- Built-in Speakers And Detachable Stand

LG
Life's Good

Motorola DCT5100 Digital Set-top Box: how-tos

Motorola DCT5100 Digital Set-top Box
Price N/A: lease through cable operators.
www.motorola.com/us

If you want HDTV from a local cable provider, there's a good chance you'll end up leasing a Motorola DCT-5100. This digital set-top box has a lot of features and functionality that aren't necessarily used to their full potential if you have an inept installer set it up, but this guide will let you unleash the device's full potential.

Video Connections

The only video input for this box is the Cable In port where you attach the coaxial cable that comes out of your wall. For video output, however, you have a few options. You should avoid using the yellow RCA jack if possible, as it transmits a composite video signal that won't let you view HDTV content on your television. S-Video has better quality but still does not transmit an HDTV signal, so don't use that as your main connection, either. Instead, connect a VCR, TiVo, or other recording device that lacks HDTV capabilities to the set-top box using one of these video outputs (preferably S-Video if the recording device has an S-Video input port).

Make the connection to the television using either the set-top box's DVI (Digital Visual Interface) or component video outputs. DVI is the preferred connection method if you have an all-digital HDTV such as an LCD or plasma screen, as DVI outputs a pure digital video signal. Unfortunately, the DVI port is disabled on many DCT5100 units, so if you have a digital HDTV, contact your cable provider to see if it can activate the DVI output on its equipment before you commit to a contract.

The component outputs transmit an analog high-definition signal that is comparable in quality to the DVI output and best-suited for analog HDTVs such as CRT (cathode-ray tube) models or any other model that lacks a DVI output. Component cables are much less expensive than DVI cables, but if your HDTV has both DVI and component inputs, you should try to get your hands on both types of cables to see which offers better image quality when used with your particular setup.

Audio Connections

Here's where things get tricky. The DCT5100 has standard RCA stereo jacks (the red and white jacks next to the component video jacks), but also offers fiber-optic and coaxial digital audio output (if the company where you leased the equipment didn't disable these outputs). If you have a surround-sound setup that accepts optical SPDIF (Sony/Philips Digital Interface) or coaxial SPDIF inputs, use one of those digital audio connections to transmit

Dolby Digital, DTS, Dolby Pro Logic, and other surround-sound formats. An increasing number of broadcasters incorporate digital surround-sound into their transmissions (the 2004 Olympic Games were broadcast in high-definition with Dolby Digital audio), and taking advantage of this feature transforms your HDTV into a true home theater. Note that the cable box itself simply has the capability to output an encoded surround-sound signal. To actually hear all of those channels, you'll need a home theater receiver with a Dolby Digital decoder that can translate the signal.

Many home theater receivers accept both fiber-optic and coaxial digital connections, and in our testing the DCT5100's sound quality was equivalent using either type of connection. If you have access to both types of cables, try them to see which sounds best and take care not to crimp the cables when making the connection. Fiber-optic cables are especially fragile and will shatter if crushed, or snap internally if bent to an extreme angle.

Those analog RCA jacks aren't completely useless. Connect them to your VCR, TiVo, or other device that you attach to the set-top box via the composite or S-Video connections. You also can connect them directly to your television for those times when you want to watch TV without firing up the surround-sound system. You can also use RCA splitter cables to connect both the HDTV and the recording device to the analog audio outputs.

Adjust The Advanced Menu

If a technician set up your cable box or it didn't come with a manual, you may be unaware of the User Settings menu. To access this menu, turn off the cable box and press the Menu key on the front of the unit. Make sure the television is turned on when you do this because it's much easier to select options when the menu is displayed on-screen. You can highlight options by either using the cursor keys on the front of the DCT5100 or by using the cursor keys on the unit's remote control. Press the Up and Down arrow buttons to highlight an option and then press the Left or Right buttons to make changes to the highlighted option.

The first option is TV Type, which you can set to 16:9, 4:3 Letterbox, or 4:3 Pan/Scan. The numbers refer to the width to height ratio of the television screen, so use the 16:9 option if you have a widescreen television. If you have a standard 4:3 TV, select 4:3 Letterbox if you want to display all of the content of a widescreen HDTV channel on the television. This places black bars on the top and bottom of the display to preserve the HDTV channel's native aspect ratio (16:9). If

Connect your TV to the composite connections on the back of the set-top box for the best video quality.

you are willing to crop some of the image to get rid of the black bars, select 4:3 Pan/Scan, which crops the image on the left and right to create a 4:3 aspect ratio image that fills the entire 4:3 screen.

The next option is YPbPr Output, referring to the component video connection used for HDTV output. This is an extremely important setting because it determines what video format the DCT5100 outputs from the component video connection. 480i is the least desirable option. It is an interlaced video format with low resolution (640 x 480 pixels) suitable only for older analog televisions that don't support progressive-scan or HDTV technology. 480p is the same thing as 480i only it is not interlaced. It displays an entire frame of video at once using progressive-scan technology, so the picture quality is better than 480i. Use this setting if you have a 4:3 television that supports progressive scan but does not support HDTV.

The two HDTV formats are 720p and 1080i. 720p has a resolution of 1,280 x 720 pixels and is a progressive-scan format, while 1080i is interlaced but has a much higher resolution (1920 x 1,080 pixels). Check your television's manual to see if it natively supports one format or the other, and use that format. If it supports both, watch some HDTV content in both formats and select the one that looks best on your television.

Another important setting is 4:3 Override. It determines how your TV displays 4:3 standard definition channels (as opposed to 16:9 HDTV channels). If you have a widescreen television, select Off or 480p (whichever looks best). If you have a 4:3 TV, select 480p if the set supports progressive scan or 480i if it doesn't.

Additional Considerations

If your 4:3 progressive-scan television (or your receiver) converts standard 480i signals to 480p format, you may want to bypass the upconversion on the cable box by selecting 480i and let your A/V equipment convert the signal to 480p. High-end A/V equipment generally does a better job of converting television signals, so experiment to see which combination of settings looks best.

The DCT5100 has a switched power outlet on the back, meaning any device plugged into the outlet will lose power when the cable box is turned off. It is rated for 500W and 4A max, so check the specifications of any device you plan to plug into it to make sure it doesn't exceed those values. There's nothing worse than having a cheap leased cable box fry your expensive A/V equipment. ce

BY TRACY BAKER

Advertisement

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Sony MDR-DS3000 Wireless Dolby Digital Headphones: how-tos

The Sony MDR-DS3000 wireless surround-sound headphones let you watch a movie at a thunderous volume without disturbing your neighbors, and also without being tethered to your television with wires. When you first open the box, start charging the included headset batteries right away. It takes about 16 hours to get a complete charge the first time around, but if you're anxious to try the headphones immediately, you can use two regular AAA cells instead. (Just don't try to recharge them.) Press the battery door release button on the left ear cup housing to open the battery compartment. Install the batteries and then use the included 9V AC adapter to connect the base station to wall power. The headset recharges by sitting on the base station, but getting the electrical contact points on the bottom of the ear cups to line up with their counterparts on the base station can be a bit tricky. Start by placing the headphones vertically on the station and then tilt them back until you hear the contacts click into place and see the red Charging light illuminate on the front panel.

You'll have two options for connecting the headphones to your audio source: one analog, one digital. If your receiver or DVD player has an optical digital audio output, use the included digital cable to connect it to the base station's digital input. Make sure the digital signal it's outputting is 48KHz or lower—the MDR-DS3000 won't work with 96KHz and higher sample rates. You can usually use your DVD player's audio options menu to select the correct rate. If you don't have a digital output from your stereo system, you can use standard red and white RCA cables to link the headphone base station to your system's analog outputs. Take care to match the red output to the red input and the white output to the white input to ensure that you don't end up reversing the right and left audio channels. Finally, be sure to select the input you choose, analog or digital, with the base station's front panel input selector switch.

For best results make sure the base station faces the area where you'll use the headphones most. Although it has a range of 23 feet when the station is pointed at the headphones, it quickly drops to only 10 feet when aimed 45 degrees away. The system uses infrared light for audio transmission, so you need a clean line of sight to the receiver. Direct sunlight, strong indoor lights, and plasma displays all can interfere with transmission, as well, so keep the lights down for the movie and don't sit too close to the TV.

Sony MDR-DS3000 Wireless Dolby Digital Headphones
$299.99
www.sonystyle.com

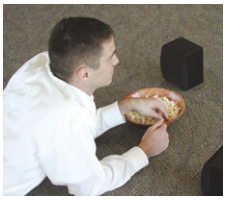
Tweak Your Headphone's Sound

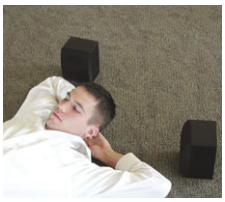
The Sony MDR-DS3000 really shines in the optimization it can provide for your sound. Begin by using the Volume Level control on the right ear of the headset to set a comfortable volume. The MDR-DS3000 can get pretty loud, so if you're not experiencing the level you want, it's likely the source device is set to a low volume level. Sony anticipated this situation and included a volume tweak on the back panel of the base station. Change the attenuator switch (marked ATT) from the -8 dB position to the 0 dB position for a significant boost in volume.

The headphones also have special digital signal processing built in to simulate surround sound. If your sound source is producing Dolby Digital, Dolby Pro Logic II, or DTS audio, the base station will automatically detect the encoding and display the decoding mode with a front panel indicator light. The experience of listening to music and movies through headphones is different than in a room or a theater. To help bridge the gap, Sony added an Effect switch to the front panel of the base station. In the Off position, it does nothing. In the Cinema position, the effect changes the audio to simulate a sound field similar to what you would experience in a movie theater, enhancing the surround sound and low bass. In the third Music position, the headphones simulate the effect of listening to music from speakers in a typical room. Generally, the Cinema setting works best for movies and Music works best for audio, but experiment with both to see what you prefer. The difference between the three settings is fairly dramatic. It may be that your tastes change among different movies and music recordings.

If you're experiencing problems with your sound, there are a few things you can try. If you're not getting any sound at all, charge the headset batteries and then check the connection to the receiver to make sure your cables are connected correctly. If you have loud background noise or distorted sound, first move closer to the base station to see if a weak signal could be the cause of the problem. Next, double-check to be sure your hair or clothing isn't obstructing the infrared receivers on the headset. If you're using the digital input, make sure your DVD player isn't putting out 96KHz digital audio instead of the 48KHz that the headphones are compatible with. Finally, if you're using the analog input, try changing the position of the ATT switch to make sure you're not providing too much or too little signal.

BY JOSEPH S. BELL





tips

Surround-Sound Speaker Placement

1 **Stereo image is everything.** Arrange your front speakers so they're symmetrical across the centerline between your LP (listening position) and television, ideally with the tweeters at ear level when seated. Put on some music with a strong vocal track, close your eyes, and try to locate where the voices are coming from. Then fine-tune the speaker placement until the vocals seem to come right from the center of the TV. Even moving the speakers just an inch in the right direction can produce a dramatic change in focus and clarity. If you're having trouble localizing the sound, your speakers may be too far apart; move them closer to the TV. Optimal placements normally form an angle from the LP of 45 to 60 degrees. Accurate placement of the main pair will give you clean, clear imaging and a solid foundation for the other speakers to augment.

2 **Rule of odds.** If you have a particularly problematic room, you can achieve the best results by using the **Rule of Odds** to decide where to put your main speakers. This rule states that the distance from the speaker to the nearest side wall should be an odd fraction of the room width. For example, in a room 10 feet wide, each speaker could be one-third the room width from the side walls, or 3 feet 4 inches. Or, one-fifth the width, which equals 2 feet from the walls. For best results, measure from the center of the speaker's cone. The same rule should be used with the room length, as well, with the caveat that distance from the side and front walls shouldn't be too similar. A difference of 33% is a good guideline. So, if your speak-ers are 24 inches from the side wall, they should be more than 32 inches from the front wall. The numerology of the rule of odds may seem strange and arbitrary, but it's designed to keep your speakers out of places where **standing wave resonances** (sound waves that bounce back into themselves) in your room will color them. If you have time to measure your room and adjust accordingly, it will save you hours of trial and error.

3 **Center speaker placement.** Ideally, your center speaker should be aligned with the front edge of your TV to prevent sound reflections and the same distance from the LP as your main speakers. If both aren't possible, the distance question is more important. Get a friend to sit in the LP and hold the end of a piece of string to his or her forehead. Use the other end to measure and ensure that the distance to each of the speakers is the same. The subtle time delays that come from even a small deviation can rob your speakers of power and destroy the surround illusion.

4 **Subwoofer settings.** If you still have bass problems, or more commonly, if your bass has gotten better but now the midrange seems muddy, there are a few remedies to try. Most subs have a phase switch that determines if the speaker will push air out or pull it in for a positive signal. Try both settings and choose the one that gives the loudest, clearest bass. This will ensure the sub is working with the speakers, not against them. Then adjust the subwoofer volume so the bass is strong, but not so loud it seems disconnected from the music. The last setting is the crossover point, which determines at what midrange frequency the sub stops reproducing treble sounds. Setting it too high will create a muddy, indistinct midrange. Set it too low and your mids will be cold and lifeless, and your bass will seem disconnected and unmusical. Experiment with settings until you achieve a good blend between the sub and other speakers.

5 **Rear speakers.** There's no final word on what to do with your rear speakers—placement is largely a matter of taste. Start with them at the sides and a little behind the LP. If you usually use your surround system for music, you'll probably prefer a tight, focused sound field. Keep the speakers at ear level, the same distance away as the main speakers, and pointed at the LP. However, if you normally use your system for movies, you'll probably like a more ambient, diffused sound. In this case, raise your speakers higher, perhaps about 6 feet off the ground, and experiment with pointing them away from the LP. Like the front speakers, rear speakers do best when they're 2 feet away from walls. ce

BY JOSEPH S. BELL

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Share your All-in-One with multiple home PCs using built-in wired and wireless[1] networking. Enjoy on-the-go wireless printing freedom from a notebook or camera phone.[2] Advanced photo features let you view, print, and edit photos without a PC using a memory card and the 2710's large, 3.5-inch image display or an HP Photo Proof Sheet.

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3 Up to 4800 x 1200 optimized dpi color when printing from a computer and 1200 input dpi

4 6-ink printing available with purchase of HP 99 Photo Inkjet Print Cartridge (not included, sold separately)

5 Compatible with HP Officejet 7300 and 7400 All-in-One series, HP Photosmart 2700 and 2600 All-in-One series, and HP Photosmart 8400 series; All-in-One and printer must be on a network with a broadband Internet connection

digital music players

Say Goodbye To Analog Audio

Digital Music Goes Mainstream

When the music industry started putting digital music on CDs, customers didn't waste time turning the pricey new format into a ubiquitous commodity, and now the next digital audio revolution is upon us in the form of portable digital audio players. The compressed digital music phenomenon has been around for years, with PC users converting music collections to compressed formats and swapping files via the Internet. It now seems clear that most people want to take music files on the go.

The digital audio player industry is currently seeing massive growth, and the CEA (Consumer Electronics Association) predicts that more than 5.7 million digital audio players will ship from manufacturers to retail shelves in the United States in 2004. To put that in perspective, just over 6 million digital audio players were sold in the United States between 2000 and 2003, with half of those sold in 2003. The success of Apple's iPod, the proliferation of legitimate music download services, and a consumer base that's increasingly technically savvy are fueling a market that the CEA predicts will sell more than 8.8 million units in the United States by 2008 to generate more than $1.2 billion in sales.

When a market becomes this big, things become confusing, but we're here to help. Whether you're buying a digital audio player or upgrading an existing unit, or you just want to get the most use out of your player, we'll focus on a few of the more popular players and tell you how to set up and use them.

Hard Drive-Based Players

Remember when buying the latest digital audio player meant having to pick songs to squeeze into its mere megabytes of memory? Those days are long gone thanks to players that incorporate hard drives that store multiple gigabytes of data. An average MP3 music file, recorded at a bit rate of 128Kbps (kilobits per second) uses about 1MB of space per minute of music. One gigabyte equals 1,000MB, so today's hard drive-based players with capacities ranging from 4GB to 80GB (and beyond) store enough music to let users make it to the moon and back without ever hearing the same track twice—literally; the Apollo 11 astronauts completed the round-trip in five days, or 7,200 minutes.

Massive storage space has a few other advantages. Even users with large music collections should have enough space to store other types of files on the player (see the "More Than Music" sidebar), and the extra room lets users store larger music files with superior sound quality. Digital audio players are often associated with compressed music files, where audio quality is reduced to crunch the file to one-tenth its original size to cram more music into the space. With ever-increasing hard drive capacities, however, it's possible to use less compression to retain more sound quality and still have room to store hundreds of hours of music on a player.

Hard drive-based players have drawbacks. They contain tiny, moving parts and will break if you drop them. They weigh more than flash memory-based players, making many hard drive-based products unsuitable for jogging or running. They consume a relatively large amount of battery power, although advances in the battery field and engineering enhancements in the players have recently made this less of an issue. Current models, such as Creative's 20GB Zen Touch ($269.99; us.creative.com), operate continuously for 24 hours on a single charge depending on use, according to the company. See page 59 for information on how to set up and use the Zen Touch.

Hard drive-based players also tend to be more expensive than products that use competing technology. Apple's best-selling iPod series, for example, has 20GB models for $299 (page 56) and 40GB models for $399. That's not chump change, but if you want to carry around the maximum number of tunes and files, a hard drive-based player should rise to the top of your list.

Flash Memory Inside

Hard drive-based players are slimming down, but if you crave true portability, flash memory-based players are tough to beat. These devices use solid-state memory chips that have no moving parts, so compared to hard drive-based players, they're more durable if you drop them, and they operate silently, consume less power, and typically don't weigh as much as hard drive-based players.

Limited storage capacity is the major downside to flash-memory technology. The original digital audio players used flash memory chips and stored a few megabytes of data. Most models today store 128MB or more, topping out at 1.5GB. Creative offers sleek players in its NOMAD MuVo^2 (page 72) that has 4GB of capacity, but it uses Microdrive storage that's as small as flash memory and has moving parts like a hard drive. Apple's downsized 4GB iPod Mini (page 69) also incorporates Microdrive technology. Companies, such as Lexar, manufacture flash memory cards for digital cameras in 8GB capacities, so capacities for flash-based audio players should rise as prices for the memory chips fall.

Flash-based players are increasingly popular thanks to lower prices, larger storage capacities, extra features, and their appeal to people with active lifestyles, but in terms of sales numbers, they can't compete with hard drive-based players. The CEA estimates that 2.3 million flash memory-based players will make it to retail shelves in the United States this year compared to more than 3.3 million hard drive-based players. The CEA forecasts that by 2008, flash memory-based player sales in the United States will remain virtually the same (2.3 million), while yearly hard drive-based player shipments will surge to more than 8.8 million units.

Some digital audio players use CDs as media. They play standard audio CDs and read CD-Rs and/or CD-RWs with compressed audio files. The storage space is almost endless because users can burn as many songs as they like to cheap CDs and swap discs as needed.

Users, unfortunately, must compromise for this convenience. CD-based players

More Than Music

Digital audio players are good for more than just carrying your entire music collection in the palm of your hand. Most are designed to store any type of digital file, from documents to entire applications. Connect them to a PC via a fast enough interface and you have what amounts to an external hard drive. With fewer PCs shipping with floppy diskette drives, it's becoming increasingly difficult to transfer data between work and home unless you're lucky enough to have a virtual private network for transmitting the files across the Internet or CD burners installed on both your home and work computers.

If you have a portable digital audio player that acts like a hard drive, all sorts of scenarios are possible. Imagine working on a presentation at home and transferring it to the digital audio player. You can use the player to listen to some tunes on the way to work, transfer the presentation to your work PC, and even connect it to a laptop and deliver the presentation directly from the player. If you have video files or pictures that you want to share with friends and family members, load them onto the player, use the device to listen to an audiobook or a few albums on the plane or car trip, and connect the player to your friend's PC once you get there. You can let them copy any pictures or other files they like or simply display the data directly from the player so it doesn't take up any space on their hard drives. With some players it isn't even necessary to install any special drivers or utilities to get at the files. Just connect it to the PC, and the player is instantly recognized as a virtual drive. ■

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HP Photosmart 2610 All-in-One Printer, Flatbed Fax, Scanner & Copier

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5 Borderless and panorama printing using brochure and photo papers

are bulky because they have to be physically larger than the CDs they read. They aren't a good choice for joggers or bikers because they may skip when jostled, although generous memory buffers can help compensate for this when listening to compressed music. There's also a need to keep track of several discs, although it's possible to put more than 10 hours of songs on a single recordable CD using 128Kbps compression.

Manufacturers are moving away from CD-based players as buyers snap up hard drive- or flash memory-based digital audio players.

Early adopters transferred music to their digital audio players at a glacial 12Mbps (megabits per second, where 8 megabits equals 1 megabyte) using USB 1.1 technology, or slower if a standard serial port interface was used. Today's digital audio players rely on much faster USB 2.0 (Hi-Speed USB) or FireWire. USB 2.0 transfers data at up to 480Mbps, while FireWire transfers data at either 400Mbps or 800Mbps depending on the type. Real-world speeds rarely match the theoretical maximums, but USB 2.0 or FireWire are virtually requirements if you want to fill a hard drive-based player. Some players, such as Apple's latest iPods, also draw power from the USB 2.0 or FireWire connection so they can recharge and transfer data via the same cord.

When you picture a digital audio player, the rectangular shape of an iPod comes to mind, but today's players are available in a staggering array of shapes and sizes that cater to practically any need.

One of the advantages larger players have over smaller ones is that there is more room on the front of the unit for a relatively large display. With thousands of tracks to organize, lots of playlists to sort through, and tons of settings to adjust, larger displays are incredibly useful. They may display embedded track information (artist, title, etc.) without forcing users to scroll as much to see the data.

Smaller players are ideal for exercising, especially if they use flash memory. Be prepared to download new songs to the device frequently as the smallest devices store only a few hours of music. As processors, memory chips, and other components shrink we're reaching the point where MP3 players are becoming wearable. Oakley's upcoming Thump ($395 for 128MB model, $495 for 256MB model; www.oakley.com), for example, integrates a digital music player into a pair of sunglasses, complete with flip-down earbud headphones.

Format Compatibility

The terms "digital audio player" and "MP3 player" aren't interchangeable; MP3s are one of a number of compressed audio formats that audio players handle. Devices also play WMA (Windows Media Audio), Ogg (Ogg Vorbis), WAV (uncompressed audio), and AAC (Advanced Audio Coding) files, among others. Look at your player's compatibility list before downloading files from music sites. Apple's popular iTunes site, for example, lets users buy AAC-encoded files that play only on computers and iPods. Other portable music players won't play AAC-encoded files.

Some companies have created software that translates music from one format to another so it'll play on all portable devices. One example is RealNetworks' Harmony (www.real.com), which claims to convert any protected file so it'll play on virtually any portable audio player.

Some players have integrated radio tuners so you can listen to and in some cases record FM broadcasts. Players with integrated microphones record and are great alternatives to messy tape recorders for conducting interviews or capturing lectures for later note-taking.

The fanciest players have relatively large color screens that display full-motion video. Archos currently sells some of the most full-featured digital media players with its AV400 series ($549.99 to $799.99; www.archos.com). These players let users record hundreds of hours of TV programs to the device for later viewing. Of course, AV400 units also play MP3, WAV, and WMA audio files.

Ready For More?

Today's digital audio players offer convenience and versatility. Upcoming players promise even more functionality. To learn more about current and upcoming products, check out the rest of the articles in this section.

BY TRACY BAKER

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Print, scan, and copy in true-to-life color, plus view photos on a built-in LCD and print from memory card slots.

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1 Up to 4800 x 1200 optimized dpi color when printing from a computer and 1200 input dpi

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4 Based on HP light fade testing under glass using the included HP 97 Tri-color and optional HP 99 Photo Inkjet Print Cartridges on HP Premium Plus photo papers

Apple iPod 20GB: how-tos

Courtesy of Apple

Apple iPod 20GB
$299
www.apple.com/ipod

Apple's iPod is in its fourth generation, and Apple continues to evolve and refine its functions. But one thing has not changed: iPods require Apple's iTunes software player to import and manage music.

iPods ship with a CD-ROM containing Mac and Windows versions of iTunes and the iPod Software Updater, but check for more recent versions and, if available, download and install those. (The updater is an application that upgrades the OS in current and earlier iPods.) To check for the latest version of iTunes, head to www .apple.com/itunes. For the iPod Software Updater, go to www.apple.com/ipod /download.

The iPod requires no assembly, but the built-in Li-Ion (lithium-ion) battery will probably need charging. There are two ways to do this: Plug its power adapter into an electrical outlet or connect the player to your PC. Either way, you'll need one of the two included cables: FireWire or USB 2.0. Each cable has one end whose plug is uniquely designed to fit a narrow port along the bottom of the player.

Charge It

When charging with the adapter, you're limited to using the FireWire cable. On your computer, you can use whichever cable you prefer or will fit your PC or Mac. As the battery charges, the LCD will display an animated battery icon.

A couple of pointers: To charge the iPod on your computer, a jack on the computer itself is best. If you have to use a hub, make sure it's a powered hub. And whenever you disconnect the cable from the iPod, don't just yank it; squeeze the sides of the plug first so it releases.

The Click Wheel, introduced months ago on the iPod Mini, is the key to playback and navigation.

To turn on the iPod, click the wheel. Because it's touch-sensitive, you can rub your finger around the wheel to scroll up and down menus and lists. To move right, into the submenu of a highlighted item, click the center button. To backtrack one level, click Menu. And the Play/Pause control and Fast-Forward/Rewind arrows should be obvious. While a song is playing and its title is displaying, the same circular touch will adjust the volume.

Because the wheel is so sensitive, however, you may need to engage the Hold switch on the player's top edge to prevent accidental changes.

As mentioned earlier, Apple's iTunes software player is at the heart of managing music on an iPod. The Mac and

With a CD selected in iTunes and the song titles obtained from the CDDB (CD Database), you're ready to click the Import button.

Windows versions are virtually identical, so the instructions below will apply to both platforms.

Visually, iTunes consists mainly of a large Library window that lists songs and columns of information. (To specify which columns are visible, choose View Options under the Edit menu.) To the left of the Library is the Source List, which holds playlist names, provides access to the iTunes Music Store, and more. Whenever you connect an iPod to your Mac or PC or insert a CD, it, too, shows up in the Source List.

Import Your Tunes

The first time you connect your iPod, the Setup Assistant gives you the option of syncing the player to iTunes, so the iPod will import iTunes' entire Library. Whenever you subsequently connect the iPod, it will update itself to duplicate the Library's contents or designated playlists. (This feature is also accessible via the Options button, displayed in iTunes' lower-right corner whenever the attached iPod is selected in the Source List.)

Syncing is certainly a no-fuss way to manage things, but your iPod will always be a carbon copy of iTunes and will even delete tracks you may have added elsewhere—say, from a notebook PC. But there's a better way.

By opting for manual management, instead, you can treat the iPod like a completely independent volume. And with 20GB of storage, you can pack it with the equivalent of hundreds of your CDs, which you might not want gobbling up your hard drive.

To import a CD, pop it into your computer's disc drive and select it in the Source List. If you're not online, log on because you can avoid a lot of typing by choosing Get CD Track Names from iTunes' Advanced menu. This prompts iTunes to consult the CDDB (CD Database) and automatically fill in song titles, times, and more. (After the songs import, you can manually create or edit their ID tags by selecting Get Info from the File menu.)

If you intend to rip the entire CD, make sure there are check marks in the boxes preceding each song. If you only want to convert certain tracks, remove the checks from the songs you don't want and click the Import button in the upper-right corner.

To transfer the converted album to the iPod, drag its tracks from the Library and drop them onto the iPod's icon in the Source List.

For more, see our coverage of the iPod mini on page 69.

BY BRIAN HODGE

Advertisement

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Work with freedom using built-in networking and 802.11g wireless printing*—easily share printers with up to five PCs. New wireless network key enables truly hassle-free setup in less than 20 minutes with enhanced network security.**

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*****Using brochure and photo papers for borderless printing
******Based on HP light fade testing under glass using the included HP 97 Tri-color and optional HP 99 Photo Inkjet Print Cartridges on HP Premium Plus photo papers

Creative Zen Touch: how-tos

Creative Zen Touch
$249
www.creative.com

What contains more than 5,000 songs and fits in the palm of your hand? The Creative Zen Touch, a portable audio player. Its 20GB hard drive stores up to 5,000 MP3 files or 10,000 WMA (Windows Media Audio) files in an easy-to-customize device.

Not only does the Zen Touch weigh only slightly more than 7 ounces, you can smoothly manage it with one hand, thanks to its 4.12- x 2.7- x 0.87-inch dimensions. Another number to pay attention to is 24 hours, which represents the amount of time you can continually listen to the player. Lastly, the 97dB (decibel) signal-to-noise ratio means the audio quality is excellent.

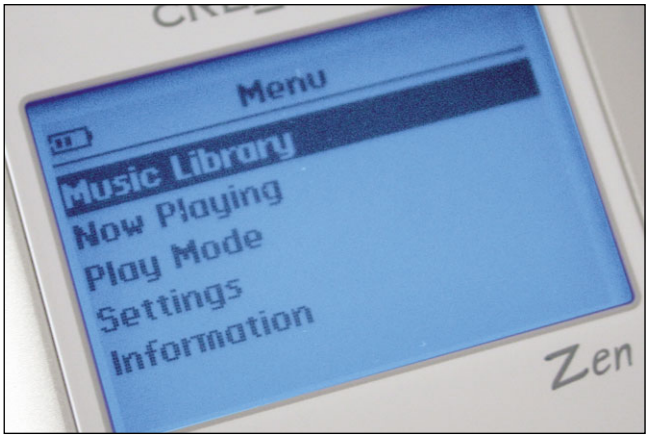
The Zen Touch is a sharp metallic graphite player with an LCD set inside a glossy white face. You operate the player via a few buttons and the Touch Pad, a control similar to the touch pad on a notebook computer, which lets you navigate to various features such as specific albums and user-created playlists by moving just your thumb.

Before you use Zen Touch, charge the battery for about four hours. Then, insert the Zen Touch CD into your CD-ROM drive and follow the instructions. The unit will prompt you to install three programs: Adobe Acrobat Reader, for reading the manual and other PDF files; Creative Zen Touch, for user guide content, registration, and more; and Creative MediaSource Organizer, for converting CD tracks to MP3s and transferring files from your PC to Zen Touch.

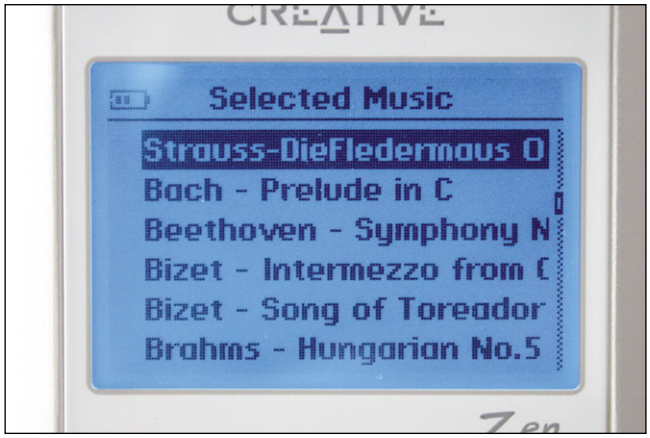
You don't need to transfer files onto Zen Touch; it includes nearly five-dozen classical tunes performed by the Beijing Central Philharmonic Orchestra already loaded into memory. But whether you're listening to these or thousands of songs you've downloaded onto Zen Touch, you can organize tunes by album, artist, genre, or other characteristics; search through the library of songs; create a variety of playlists; and view detailed information on each track.

Other features include the ability to lock the player, set numerous user preferences, and access Zen Touch device information such as free space and album count. And, the customizable EQ settings give you the power to decide just how much bass, midrange, low-treble, and high-treble you want to hear.

Not surprisingly, given the amount of storage, the most complicated part of learning how to use the Zen Touch arises when you begin managing its music. Most importantly, don't confuse the unit's Music Library and Selected Music List features. The Music Library is



When you press Menu, the LCD shows the main menu with five options: Music Library, Now Playing, Play Mode, Settings, and Information.



The Selected Music List lets you choose a subset of songs to listen to. The player, by default, has five popular classical albums from which to choose.

a searchable database of every song the player contains, while the Selected Music List is the group of songs you are currently listening to. When adding, deleting, or otherwise organizing songs, you'll want to make sure you're working within the proper category.

Music Library

Let's begin with the Music Library. To see a list of all the songs in the library, press the Menu button. The LCD shows the main menu with five options: Music Library, Now Playing, Play Mode, Settings, and Information. Music Library should be highlighted (if not, move your thumb on the Touch Pad until it is); press the OK button to select it. Scroll down to All Tracks and select it. You can then scroll through the entire list or choose the first option, Find, to select a letter on the list to search for a track. To play all the tracks, after selecting All Tracks, select any track in the list and select Play; note that this automatically adds all the tracks to the Selected Music List.

But what if you don't want to play all the songs the player holds? The Selected Music List lets you choose a subset of songs to hear, whether it be an album, a genre of music, or hand-picked tunes from a variety of categories. To play an entire album, for example, select Music Library, Albums, an album (by default the player has five Popular Classics albums; choose, for example, Popular Music 4), and Add To Selected to add the album to the end of the Selected Music List. Or, to add a single song to the end of a Selected Music List, select Music Library, an audio category (such as Albums), the subcategory, View Tracks, the specific track, and Add To Selected.

To delete songs from the Selected Music List, press the Menu button, elect Now Playing, and press OK. Select a track and then select Remove Track. Repeat this process for as many tracks as you wish. Or, to clear the entire Selected Music List, instead of selecting Remove Track, select Clear Selection. The player will prompt you to confirm; select Yes.

Once you have explored creating Selected Music Lists, you'll likely want to save some tunes to listen to in the future. If so, you can save a Selected Music List as a Playlist. Press the Menu button and select Now Playing. Press OK and press OK again. Select Save As Playlist. Select letters to create a Playlist name, select OK (don't press OK, but select it from the list on the screen), and watch as the Zen Touch saves your list. To access it, go to the Music Library and select Playlists and then the list you just saved.

BY HEIDI ANDERSON

Advertisement

LG LST-3410A Combination HDTV Receiver/Digital Video Recorder

Designed to address growing consumer demand for HDTV digital recording, the LST-3410A is a combination HDTV receiver/DVR (digital video recorder). It provides the ideal solution for recording digital HDTV delivered over the air, through unscrambled digital cable channels or via a conventional analog NTSC signal. The LST-3410A features a 120-gigabyte hard drive—larger than any other on the market—and is capable of recording more than 12.5 hours of HDTV programming, 62.5 hours of standard-definition digital programming, or 120 hours of analog programming.

Easy to install, the LST-3410A offers enhanced connectivity to most devices, including HDTV displays and analog televisions, through a complete jack panel array that includes IEEE-1394 and DVI+HDCP digital interfaces.

To further enhance the home theater experience, the device also features timeshift record, live pause, high-speed fast-forward and rewind, thumbnail browsing, synopsis mode replay, HD video navigation with the TV Guide On-Screen™ interactive program guide, picture-in-grid, and Dolby® Digital Sound.

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- Native & Converted Modes
- IR Universal Remote Control

LG
Life's Good

Advertisement

LG LST-3510A HDTV Receiver/DVD Player With HD Grade Output

To help turn any room into a home theater, LG's LST-3510A HDTV receiver/high-format DVD player—which upconverts DVD images to HDTV—is the perfect choice. A versatile source for HDTV reception, it features an all-format ATSC receiver for over-the-air HD reception and a QAM tuner for unscrambled HDTV cable reception, as well as a built-in DVD player with 1080i output, Enhanced Scaler, Dolby Digital sound, a DVI+HDCP connector, a PSIP-based Electronic Program Guide, and an RS-232 serial port.

With the DVI+HDCP connector, the unit can display true digital-to-digital images of DVDs, bypassing noise-prone analog circuits that are present in some DVD players. And because the digital tuning and DVD player are combined in the same unit, connecting to an HDTV monitor is simplified. A unified remote control operates both the receiver and DVD player.

- **HDTV Receiver**—Receives over-the-air HDTV signal and digital cable (unscrambled).
- **Built-in DVD Player**—Capable of multi-format HD grade outputs including 1080i.
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- **5.1 Channel Dolby® Digital Sound**—For the ultimate in surround sound.
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LG Life's Good

Dell Digital Jukebox 20: how-tos

Dell Digital Jukebox 20
$279
www.dell.com

The Dell Digital Jukebox is a 20GB MP3/WAV/WMA (Windows Media Audio) player that's relatively inexpensive and very functional. The Dell DJ has outstanding battery life and is loaded with features. The 20GB hard drive holds about 330 hours of music. And the Dell DJ has a built-in microphone for recording voice memos when an idea of genius and inspiration hits you. The Dell DJ is solidly built and has an easy-to-navigate user interface.

Before you install anything, fully charge the DJ battery with the included AC adapter. If, in the future, you leave the DJ's AC adapter at home, you can slowly recharge the device through its USB connection, as long as your battery level hasn't dropped too low. But before you plug the DJ into your PC with the USB cable, make sure you install the software and drivers on your PC. Insert the DJ's CD in your PC's drive to install the Digital Jukebox Explorer, drivers, Musicmatch, and Adobe Acrobat Reader 5.0. If you have Acrobat installed, click Cancel and Exit Setup when you see the Adobe Acrobat Reader 5.0 setup window. When prompted, restart your PC.

Now you can attach your DJ to your PC with the USB cable and turn on the DJ. Although the DJ accommodates USB 1.1, transferring 20GB of music from your PC is best via a faster USB 2.0 connection.

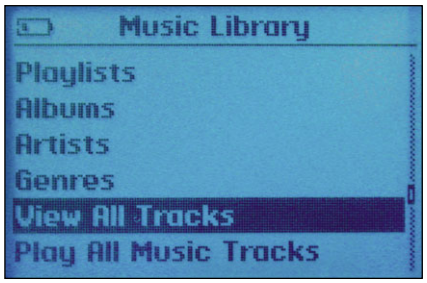
Play Tunes

Musicmatch is the default music application for the DJ, and you'll be prompted to register when you plug in your DJ for the first time. Musicmatch will provide music suggestions based on your music library. Musicmatch defaults to the My Music folder to find your music collection. Click OK and wait while Musicmatch catalogs your music. You'll see music listed by artist, and you may see a Miscellaneous heading at the top of the list. Click the plus sign (+) next to Miscellaneous (or an artist's name) to see the songs under that heading. Songs under Miscellaneous might have the improper tag associated with the file. **Tags** are information embedded in the MP3 file that identifies the artist, album, and song title. You can use Musicmatch to edit the song tags.

Meanwhile, as the Dell DJ Portable Device Manager runs for the first time, it'll prompt you to synchronize your song library to the device. Select No, I Will Manually Add Music To My Device and click Done.

Now, copy some music to the DJ. Make sure All Tracks is highlighted in the left pane in Portable Device Manager and click Add to bring up the track selection window. Select All Tracks and choose the tracks you want to copy by clicking them. Other items on that list let you sort by

Press the Home button on the Dell Digital Jukebox 20, and the Music Library option should be highlighted on the screen.



After pressing the scroll wheel, you should see the View All Tracks option. Press the scroll wheel again.

Now, you'll see a scrollable list of all of the music you just transferred to your Dell DJ.

album, genre, or artist, which is helpful when your music collection grows too large to sort by song name. Musicmatch's genre definitions can be suspect, however: The Breeders' genre is listed as Rock, while The Cure is Alternative; Sonic Youth is somehow Other. All your music files are selected by default. If you want to construct your own selection of tracks to copy, click any track to remove the default selections and hold down the CTRL key and click each file you want to copy. When you're done selecting, click the Add button, and your selected files will be automatically copied to the Dell DJ.

Disconnect the DJ from the PC and press the Home button on the DJ. Music Library should be highlighted. If not, use the scroll wheel to highlight Music Library and press the scroll wheel. Highlight View All Tracks and press the scroll button again. There's all the music you just copied to the Dell DJ. Press the back button and select Play All Music Tracks.

One-Way Street

Use Musicmatch to load music onto the DJ. You won't be able to move music from the DJ back to your PC, however, so don't rely on the DJ as a backup for your music collection. You can use the DJ Explorer application to move files, including music, onto the device and off again, but you won't be able to use the DJ to play those data files; welcome to the sometimes absurd world of DRM (digital rights management). This is especially annoying when you use the DJ's microphone to take down voice notes—no, you can't move the voice notes off the DJ.

Like the protagonist in Nick Hornby's "High Fidelity," having a huge music collection means you can create different song lists, once known as mixed tapes. Connect your DJ to your PC, power it up, and start the Portable Device Manager; bring your pointer to the left pane, right-click, and select Create Playlist. Name your playlist, highlight it, right-click again, and choose Add Track(s) To Playlist.

This will open the track selection window again. This time, we chose to sort our music by Albums, so we double-clicked Albums. Again, you can choose multiple songs by holding down CTRL while clicking to select. Clicking Add will upload your music to your player under that playlist. You can reorder your playlist to your heart's desire by dragging and dropping files from the main screen to the Portable Device Manager application.

Disconnect the DJ from the PC and go to Music Library/Playlists. You should see your new playlist. Press the scroll button, select Play, and enjoy your mix. It's too bad you won't be able to easily share your mix of genius with that special someone you're trying to impress. CE

BY BERNARD YEE

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ARCHOS Gmini400:
how-tos

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The ARCHOS Gmini400 is an all-in-one device that is billed primarily as an appliance for listening to music, but there's much more to this gadget. Along with playing MP3 and WMA (Windows Media Audio) files, the Gmini400 lets you view digital photographs, play games, watch video clips, record your own voice, and more.

The handheld device may be small—it is roughly 4.2 x 2.4 x 0.7 inches—but its nearly 20GB hard drive can store up to 300 hours of music, 80 hours of MPEG-4 (Moving Picture Experts Group-4) and music videos, and 200,000 digital photos. You can view these photos and other information, such as the music playlists, on what the manufacturer touts as the industry's first digital music player with a color LCD, a 4- x 4.5-centimeter display. And it all comes in a silver aluminum package with a distinctive design.

To get started, plug the charger into the Gmini400 (if you happen to be overseas, you can use the European charger) and wait until the solid green indicator light begins flashing, denoting a completely charged battery. After this process, which took us less than two hours, the Gmini400 is ready for action. Press and hold down the On/Go button (it's an On button when you press and hold it down and a Go button when you simply press it), and after a few seconds, release it when the start screen appears. Using the control button adjacent to the On button, navigate to the Setup icon and press the Go button. Change any desired settings, such as language and the clock, and press the Stop/Esc/Off button to return to the previous screen.

Because this is predominantly a music device, we'll focus here on listening to music files. The Gmini400 comes preloaded with more than a dozen songs to get you rocking and rolling. Plug in the accompanying headphones or use your own set and navigate to the Music icon in the start page. Press Go. Use the control button to scroll down to view titles and press Go. Scroll again until you find one that seems interesting and press Go. The song immediately begins playing, displaying the title, artist, album, file format, song length, elapsed time, and time remaining.

Other data displayed includes the battery level, time, directory information, volume levels, and buttons for Setup, Options, and the Archos library. If the song is too loud or too soft, use the control button's vertical control to raise or lower the volume. Had enough? Press the Stop button to return to the previous menu and press it again to go back to the start screen. Or, to turn off the device entirely, press and hold it down for a few seconds until the Shutting Down message appears.

When you want to copy music to your Gmini 400, connect the device to your PC via the included USB 2.0 cable. If you have a USB 1.0 hub, you'll copy at the slower speed.

Windows Media Player 9

You can integrate the Gmini400 with other hardware. For instance, you can hook it up to your TV to play videos on a significantly larger screen than the LCD, and, this capability extends to your PC. With Windows Media Player 9 integration, you can play music clips from your Gmini400 through your stereo speakers. Even more importantly, you can copy music files quickly and easily onto the Gmini400 from your PC, whether the files originally were from a CD you copied onto the PC; an online music service, such as Napster; or some other location.

First, download and install WMP9 and the Archos plug-in, the WMP9 Service Provider, that enables communication between the Gmini400 and WMP9. You can do so via the device itself, but it's easier to download the software. Go to www.microsoft.com/windows/windowsmedia/9series/player.aspx and follow the instructions for downloading and installing the Windows Media Player 9 if it isn't already on your system.

Then, head to Archos' site, click the Download link at the top, and select Drivers. Be sure to select Drivers and not Plug-ins. The list of drivers features a 91KB file with a Windows Media Player logo. Follow the online instructions for downloading and installing this WMP9 Service Provider, making sure you extract the compressed files before installing them.

Now, you may begin copying music to your Gmini400. With your PC on but WMP9 not yet opened, connect the device to your PC via the USB cable. Press and hold the On button. You'll see a screen that says USB Cable Attached, and by design, you won't be able to see the Gmini400 start screen. The USB cable that comes with the device is a USB 2.0 cable. If your PC displays a message that you're plugged in to a non-Hi-Speed hub but you don't have a USB 2.0 hub, don't worry about it. Although music transfers are then limited to USB 1.1's speeds and, therefore, are slower, our device ran just fine, and we didn't spend hours waiting when we connected it this way.

Open WMP9. Click Copy To CD Or Device in the left navigation menu. In the Items To Copy pane, click the playlist or other item to copy and browse your hard drive. If this leaves you with too large of a list (we chose to copy all music files onto our hard drive), remove the checks from the checkboxes next to any titles you don't wish to transfer. Then, in the Items On Device pane, click the drop-down arrow to locate the Archos Gmini400 device, which in our case was the F: drive. Click Copy and wait until all the files are transferred. Then, unplug the USB cable, plug in your headphones, and enjoy your new portable music library.

BY HEIDI V. ANDERSON

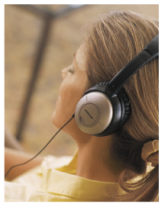
Think of them as a reprieve from the world around you. Whether it's the engine roar on airplanes, noise of the city, bustle in the office or the blare of neighborhood yard work, these headphones help you escape them all. And they do it with the flick of a switch. You savor delicate musical nuances in places where you couldn't before. And when you're not listening to music, you can use them to quietly enjoy a little peace. Clearly, Bose QuietComfort® 2 headphones are no ordinary headphones. It's no exaggeration to say they're one of those things you have to experience to believe.

Reduce noise with Bose technology. David Carnoy reports on *CNET* that our original noise-reducing headphones "set the gold standard." And according to respected columnist Rich Warren, our newest headphones "improve on perfection." They electronically identify and reduce noise while faithfully preserving the music, movie dialogue or tranquility that you desire. As Jonathan Takiff reports in the *Philadelphia Daily News*, "Even in the noisiest environment, wearing these phones creates a calming, quiet zone for easy listening or just snoozing."

Use them as a concert hall – or a sanctuary.

Presenting The Bose® QuietComfort® 2 Acoustic Noise Cancelling® Headphones.

Enjoy your music with our best headphone sound quality ever. After trying QuietComfort® 2 headphones, audio critic Wayne Thompson reports that "Bose engineers have made major improvements." The sound is so clear, you may find yourself discovering new subtleties in your music. *CNET* says "All sorts of music – classical, rock, and jazz – sounded refined and natural."



"The QuietComfort 2 lives up to its name, enveloping you in blissful sound in the utmost comfort. It's easy to forget they're on your head." That's what columnist Rich Warren says. And as Ivan Berger reports in *The New York Times*, the "QuietComfort 2 offers more conveniences than the original model." You can wear them without the audio cord to reduce noise. Or, attach the cord and connect them to a portable CD/DVD/MP3 player, home stereo, computer or in-flight entertainment system. When you're done, their convenient fold-flat design allows for easy storage in the slim carrying case.

Try the QuietComfort® 2 headphones for yourself risk free. We don't expect you to take our word for how dramatically these headphones reduce noise, how great they sound and how comfortable they feel. You really must experience them to believe it. Call toll free to try them for 30 days on your next trip, in your home or at the office – satisfaction guaranteed. If you aren't delighted, simply return them for a full refund.

Call 1-800-720-2673, ext. Q3270 today. These headphones are available directly from Bose – the most respected name in sound. Order now and you'll receive a free portable Bose CD Player with skip protection – a $50 value. Be sure to ask about our **financing options.** So call and discover a very different kind of headphone – Bose QuietComfort® 2 Acoustic Noise Cancelling headphones.

FREE Bose CD Player when you order by Jan. 31, 2005.

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Apple iPod mini: how-tos

Apple iPod mini
$249
www.apple.com/ipod

Courtesy of Apple

As if Apple's regular iPod wasn't small enough, it's now become the proud parent of this miniaturized offspring. Packing a 4GB hard drive, the iPod mini is nearly everything the standard iPod is, only tinier. And more colorful. Whereas the iPod comes only in basic white, the mini comes in five colors. It also includes a sturdy belt clip, an accessory the iPod lacks.

Family Likeness

On page 56, we covered setup and basic use for the new fourth-generation iPods, so refer to that for an overview on getting started with the iPod mini. Everything there—checking for the latest software, charging the battery, using the Click Wheel, and importing music—pertains to the iPod mini, as well.

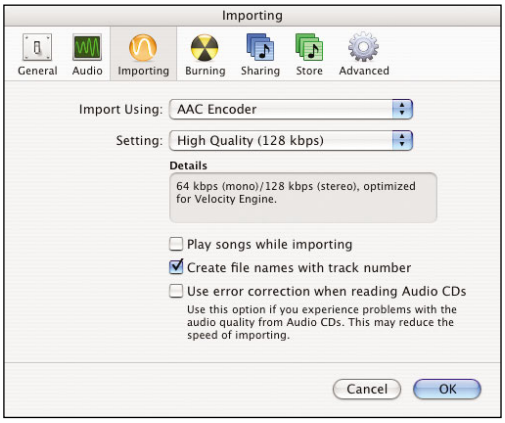
There is, however, one slight difference to be aware of: The units have different OS numbers. (As we go to press, the latest version of the iPod Software Updater is 2004-08-06. This includes operating system 3.0.1 for fourth-generation iPods, known as the Click Wheel iPod, and system 1.1 for iPod minis.) So be sure you look up the proper unit to determine whether yours came with the latest software.

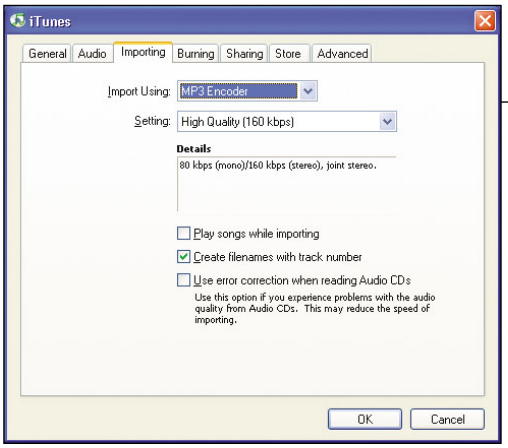
The iPod displays a deceptively concise menu. Here, too, the mini differs slightly from the full-sized iPod. Both players' menus include Extras (personal assistant-type items such as a clock, calendar, and more), Settings, and direct access to the LCD display's Backlight.

To these, the mini adds Playlists and Browse. Playlists are your personal mixes—high-energy tracks for workouts, your favorite down-tempo chill-out music, etc. We cover creating those below. With Browse, you can peruse your music collection according to various criteria: Artists, Albums, Songs, Genres, and Composers. These categories rely on the ID tags that you created when you imported songs into iTunes (or are already embedded in songs from the iTunes Music Store), so make sure they're accurate. With all these categories, you're never far from whatever you want to find.

The iPod rounds out the main menu with a Shuffle command and Music. Opening the Music submenu is the same as choosing Browse on the mini, except this is where Playlists is located, as well.)

But the main menu (for both players) is just a default setting; it isn't set in stone. You can customize it to provide main menu access to other items, such as Albums and Genres. Just open the Settings menu and go to Main Menu. Here, you'll find a long list of items; choose the item you want to activate and





In both Mac and Windows versions of iTunes, you'll use the Preferences dialog box to set your choice of encoding format.

click the Select button to switch it from Off to On.

Music Management

In our feature on the fourth-generation iPod, we covered the basics of using Apple's iTunes software player to convert music from a CD and transfer it to the iPod. It works the same for the iPod mini.

Choice of format. iPods are compatible with several music formats, but the main two you'll use are MP3 and AAC (Advanced Audio Coding). AAC is an evolution of the same compression technologies underlying MP3 and is the format used at the iTunes Music Store.

When ripping tunes from a CD, you can opt for either format. Set the one you want in iTunes' Importing Preferences. In the Mac version, Preferences are located under the iTunes menu; in Windows, under the Edit menu. Because AAC encodes more efficiently than MP3, its files take up less room.

iTunes doesn't support WMA (Windows Media Audio), but when you install iTunes for Windows, it gives you the option of converting WMA files to AAC.

Playlists. iTunes lets you create playlists, subsets of the Library that play anything you want to hear in whatever order you want to hear it.

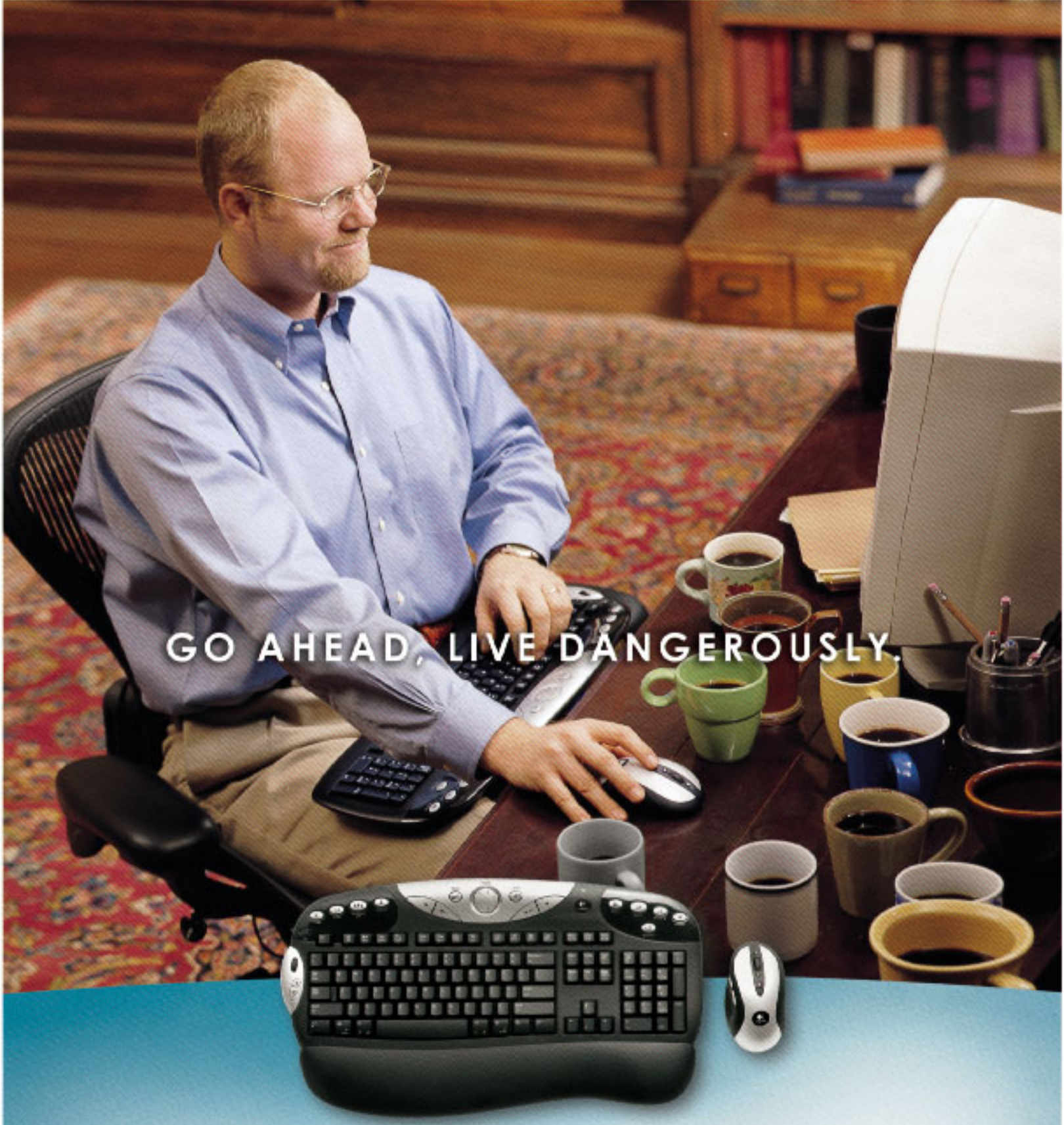
To create a playlist, click the plus button (+) under the Source List and name the playlist. To add songs, drag them from the Library window and drop them onto the playlist name. You can rearrange tracks by opening the playlist in the Library window and dragging the titles into your preferred order.

To transfer a playlist to a connected iPod or iPod mini, drag it up the Source List and drop it onto the iPod's icon. You can also create playlists directly on the iPod. Select the player in the Source List and click the plus button; the new playlist will appear as a subfolder under the iPod.

On-The-Go Playlists. This is the only music management function you can perform directly on iPods and minis. It lets you compile a single playlist while you're away from your computer. With a song, album, or artist highlighted in a menu, press the Click Wheel's center Select button. The title will flash a moment, after which you'll find it under On-The-Go Playlist.

As we go to press, the mini lacks one feature that the regular iPod has: The ability to save an On-The-Go Playlist, which will rename that playlist as New Playlist 1 and clear the OTG memory so you can start from scratch. We hope to see this added to the mini in a future update.

BY BRIAN HODGE



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Creative Labs Nomad MuVo² 4GB:
how-tos

Creative Labs Nomad MuVo² 4GB
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With storage for more than 2,000 songs, you might not ever need to change this player's contents.

Out Of The Box

Not long ago, a multigigabyte hard drive seemed like a pipe dream even for the newest PC. Today you can find larger and larger drives on portable audio players, including a whopping 4GB drive in the 2.5-inch square Creative Nomad MuVo² 4GB. Four gigs means 2,000 or more typical pop songs in WMA (Windows Media Audio) format (fewer in MP3 format), so you'll be able to cram roughly 150 CDs on it at once. That's a lot, obviously.

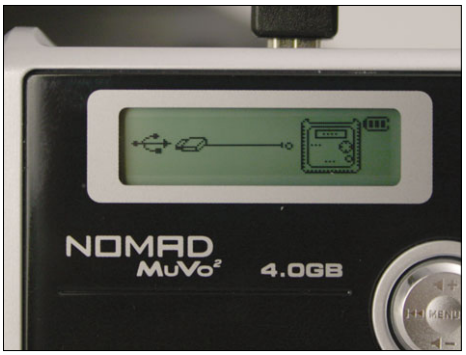
The MuVo² 4GB sets up quickly and easily. Like many hard drive-based portable audio devices, this one attaches to your PC through a USB port and operates in a sense as another Windows hard drive. Of course, it also contains software for playing audio files, as well as a microphone for recording audio and the typical volume and play controls.

Setting up this player requires that you install the Li-Ion (lithium-ion) rechargeable battery, plug the power cord into the wall and the device, and then install the Creative MediaSource software on your PC. After rebooting the PC, plug the included USB 2.0 cable into the player and your PC's USB port, wait for the PC to recognize the device, and then launch the Creative MediaSource application. MediaSource lets you sort and catalog your media files, create playlists, and control the contents of the MuVo²'s hard drive. You can transfer files to the player and delete those already on its drive, and, as with all these products, the secret lies in creating playlists that you can shuffle on and off the device depending on what you feel like listening to at any given time.

You don't need Creative MediaSource at all. You can control the device's hard drive directly from My Computer or Windows Explorer instead, using Windows' drag-and-drop tools. If you're used to Windows Explorer, you'll find it the fastest way to stock and restock your MuVo², but MediaSource works better as a media organizer because it focuses, unlike Windows, on specific types of files. But if you want to use the product as a portable hard drive for any kind of computer file (as a way to carry word processing or graphics files from PC to PC, for example), Windows Explorer is probably your best bet.

Convert Audio Files

One of the MuVo² 4GB's most welcome features is built-in audio file conversion software. Creative Audio Converter lets you convert to and from the following audio types: Wave, MP3, and three varieties of Windows Media Player files:



You can transfer audio files from your PC to your Creative Labs Nomad MuVo² by connecting the two devices with the included USB 2.0 cable.

WMA, WMA Pro, and WMA lossless. Strictly speaking, you don't need to convert these because the MuVo² is capable of playing all such files. But different listeners prefer different file types because each offers its own quality of sound reproduction, as well as the amount of drive space each one occupies. (Wave files take up much more space than either MP3 or WMA files, for example.) You can convert your files individually, or you can save a great deal of time by converting several at once.

To perform a conversion, launch the Audio Converter utility and click the Browse button to direct the program to the folder in which your music files are stored. Click OK in the Browse For Folder dialog box and, once more in the Audio Converter utility, click Add. In the subsequent Add Track dialog box, select the song whose file type you want to change and click Open. The Audio Files window now shows the track's name and source format, including type of file, sampling rate, and bit rate, none of which you actually need to know in order to perform the conversion, but which help when making specific conversion choices.

Now, select the track and click the Set Destination Format button. On the Set Destination dialog box, choose the conversion format from the Format drop-down menu. For example, if the file's original format is Wave and you want to convert it for use on your MuVo² and for playing in Windows Media Player, choose the option Windows Media Audio (WMA). You can simply click OK to accept the default settings, or you can change the number of channels (mono or stereo); the encoding mode (constant bit rate or variable bit rate); and, for WMA and MP3, the audio quality. Moving the slider up or down lets you vary from the 64Kbps (kilobits per second) standard for WMA or 128Kbps standard for MP3, but you'll quickly discover that the defaults work very well for both sound quality and file size (the higher the audio quality, the larger the file). For the other WMA choices, you choose the audio quality from an Audio Sample drop-down menu. Click Convert Now; Audio Converter creates a new file with the chosen format and specifications, leaving the original completely intact.

The magic of Audio Converter, however, lies in its ability to convert several files at once, even into different formats. Using the Browse and Add Track dialog boxes, load all the files you want to convert into the utility, click each item or a group of items, and choose the destination format you want, along with its specific settings. In fact, each track can have its own destination format and specifications, with the utility converting them all at once. Click the Convert Now button to start the batch process.

BY NEIL RANDALL

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The Evolution Of The Species

What's Next For Digital Music Players?

Digital music may consist only of ones and zeros, but it comes in several guises. The CD all but swept away vinyl albums and cassette tapes. SACDs (Super Audio Compact Discs) and DVD-Audio offer higher fidelity and surround sound, although we see no evidence that they'll break out of the audiophile niche.

For millions of listeners, digital music has no fixed physical format. It's a bunch of 4MB or 5MB files, in the MP3 or newer data compression formats, that let us squeeze near-CD-quality audio into one-tenth of its original file size.

Whether you want to take a handful of tunes for a stroll or consolidate your collection in a device that fits in your hand, there's a bumper crop of players to choose from. They integrate playback and storage in a way that's light years beyond that first Sony Walkman cassette player. And if you're curious about where this technology is heading, you're not alone.

Invasion Of The iPod

The big name in portable digital music players is the iPod (www.apple.com/ipod). Apple introduced it in 2002. From the outset, Apple conceived the iPod as more than a standalone device; it's the hardware side of an integrated system that includes the free iTunes software player (introduced in 2001) and the online iTunes Music Store (2003).

Apple is the king of hardware player sales, with a market share of roughly 50% according to the NPD Group, a market research firm. Even so, Apple hasn't been resting on its laurels. Already in their fourth generation, the units are slimmer and cheaper than ever, able to wring an additional 50% playing time out of a fully charged battery (around 12 hours). The hard drives provide 40GB (gigabytes) of storage—10 times the capacity of the first-generation player.

So what does Apple have up its sleeve? In July, Apple and Motorola announced a venture to give iTunes another kind of mobility: in cell phones. Users will be able to transfer songs from an iTunes collection on their Macs or PCs (including digitally protected songs bought from the iTunes Music Store) to Moto-rola's next gen mobile phones. To transfer, you'll have your choice of USB (Universal Serial Bus) or the wireless Bluetooth communications protocol.

This isn't intended to replace the iPod. The unit will use flash memory (a form of solid-state memory) and will likely limit the playlist to a few dozen songs. Don't look for it just yet; Apple and Motorola indicate that the hardware and software won't be ready until the first half of 2005.

As for what might turn up in fifth-gen iPods, who knows? Given Apple's increasing focus on user-friendly wireless home networking, our guess is that iPods will eventually incorporate Bluetooth. And on more than one user wish list is

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The type of storage a player uses often determines its appearance. Hard drive units, such as JetAudio's iAudio M3 (left), are typically rectangular or square. Many flash players, including iRiver's iFP-795 (middle) and Rio's new Forge (right), go for a more creative look.

Bluetooth earbuds, to do away with those wires that tether the player to your ears.

Looking Ahead

The iPod isn't the only game in town. Many other manufacturers—household names such as Sony (www.sony.com) and smaller, specialized companies such as iRiver America (www.iriveramerica.com), JetAudio (www.jetaudio.com), PoGo! Products (www.pogoproducts.com), and Rio Audio (www.rioaudio.com)—offer a range of players.

We talked with representatives from the latter four companies to see what they expect to see in their market over the next year or two.

Hard drives vs. flash memory. Digital players use either tiny hard drives or flash memory, the same kind of technology found in digital camera memory cards. Flash memory uses no moving parts, so it's practically shockproof and less likely to wear out the way hard drives can, but it isn't as cost effective for equivalent amounts of storage.

"Hard drives will remain the best medium for large capacity," says Jonathan Sasse, president of iRiver. "However, flash customers want players for biking, running, working out, etc. Flash players will always remain strong when durability and weight are considerations."

Although flash costs are dropping, this likely won't position it as a genuine competitor with hard drives. "Hard disks will develop in the same way that flash is developing," says Sanggoo Kang, JetAudio's Director of Business Development. "In my opinion, hard drives will become more shock-absorbent, small, lighter, and so forth, which would make it hard for flash to ever compete."

Storage capacity. Closely related to storage type is its capacity. In all areas of digital devices, memory and storage have been increasing over the years, but is there a practical upper limit where players are concerned?

Referring to the flash market, Jesse Fernandez, of PoGo! Products, says, "I see 512MB to 1GB becoming the norm as costs go down."

This isn't to suggest that flash capacities can't go higher. Kang points out that current flash technology can handle 8GB of storage but concedes that it may take a long time before this becomes commercially viable.

"What you've seen develop over the last year are three distinct areas for portable players," says Dan Torres, vice president of Product Marketing for Rio. "You have flash players up to 512MB, mini hard-disk players from 1.5GB to 5GB, and the high-end players are peaking at 20GB. For music devices, this seems to be all the consumer wants at this point. If video ever takes off, I think you'll see the high-end players go well in excess of 20GB."

Video? Sure. Hard drives don't care what they store. Even now we find units that play music, photo, and video files. Take SmartDisk's FlashTrax (www.smartdisk.com), which, despite the implication of its name, uses hard drives up to 80GB. Of course, size becomes a factor here; a player has to be big enough to incorporate a screen worth looking at.

Player size. The smallest digital music players available are the size of flattened butane lighters. Have players shrunk about as far as they're going to?

"It looks that way for now," PoGo's Fernandez says, "but that's hard to tell as technology continues to advance."

Francis Choi, technical marketing manager for JetAudio, says, "I believe there is room for players to progressively become smaller. We may even have a player that's the size of a button on your shirt. One Japanese cell phone manufacturer

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developed a cell phone that can be imbedded in our arms. Hi-tech and biotech combined can create wonders."

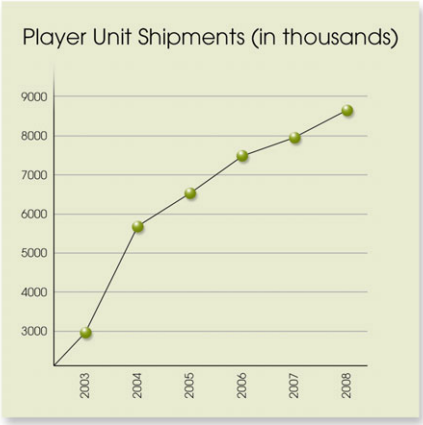
Miniaturization for its own sake is pointless and comes with a downside that Rio's Torres points out: "The smaller the player gets, the harder it is to use."

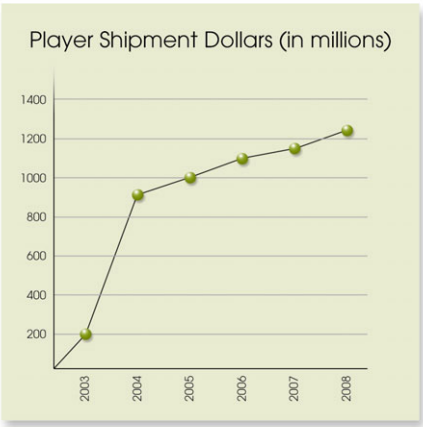
"I don't think we're talking nanotechnology here, but you can expect form factors to become more flexible, and possibly more organic," iRiver's Sasse says. "We do not believe in making players small just for the sake of having small devices, but producing the products that consumers desire, and if that means making them smaller, there is still a lot of room for reduction."

Connectivity. The Apple/Motorola plan for Bluetooth transfers notwithstanding, the manufacturer reps agree that, for the near future, we'll see a solidification of the high-speed USB 2.0 as the standard for connecting players to PCs.

Sasse breaks it down this way: "Ubiquity and speed are the determining factors. Most consumers don't buy a PC based on USB or FireWire ports. They use what's there. However, USB 2.0 has a lot going for it, including backward compatibility with USB 1.1. USB 2.0 does not require that customers abandon USB 1.1 devices that don't need the bandwidth of a fast port. The flexibility of a single-port solution is very compelling."

And what about FireWire? Although it was the first plug-and-play high-speed interface, FireWire jacks still come standard only on Macs. Even iPods, which initially used only FireWire for file transfer and battery charging, now also permit USB 2.0 connectivity. So although FireWire will remain strong with iPods, don't look for it on too many other players, if any.





Portable digital music players should be a strong growth market in the United States. Figures for 2003 are actual data; 2004 and beyond are projections. (All figures courtesy of the Consumer Electronics Association.)

DRM (digital rights management) and file support. This area has the most potential for disagreement, bewilderment, and even outright blunders.

As online retailers vie for iTunes' success, each implementing copy protection, and as more manufacturers develop proprietary compression formats, there will be incompatibilities. The iPod doesn't play WMA files, and Sony incorporated WMA and MP3 support only after the W-HD1 Network Walkman had been on the market. The eventual emergence of pocket-sized audio/video players can only generate even more format wars.

Rio's Torres says, "We support a range of formats and feel this is the way to alleviate customer confusion and frustration."

"The online music services seem to be overwhelmingly adopting DRM, so we'll continue to support DRM while playing the other major formats, as well," Sasse says. "We're rising above the debate on proprietary formats. We'll let the market decide. In the meantime, we'll support a wide range of formats and our players are firmware upgradeable to allow for support of emerging formats."

JetAudio's Kang says, "Unrestrictive access should be a default feature on portable media, in my personal opinion. However, if there was an effective universal DRM that consumers could easily use, manufacturers would have to support it." Without that, though, customer demand will be the ultimate determining factor, and "eventually many file types will be extinguished."

Keep Listening

We suspect that the next broad development will be players with wireless networking capabilities. This is something JetAudio is working on, on the path to the company's ultimate goal "to develop a gadget that will play all multimedia formats available, regardless of whether they're audio or video," Choi says.

At the same time, we'll continue to see players that fill more specialized needs. Just as we went to press, iRiver, in partnership with H20 Audio, announced the H2O Audio SV i700, the world's first waterproof MP3 player and headphones, suitable for water sports or just lounging in a hot tub.

So keep an ear to the ground. You never know what you might hear.

BY BRIAN HODGE

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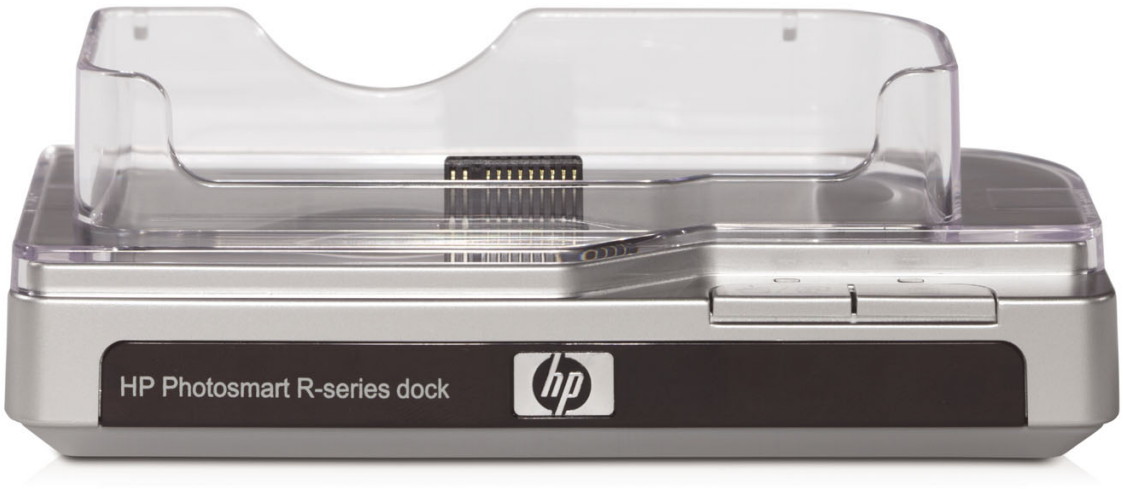

HP Photosmart R Series Dock

Transfer, print, and distribute your digital photos and video by using this dock to connect your HP Photosmart R-series camera to your PC; then attach the dock to your TV and use the included remote control to view photos in the comfort of your living room. It's fast and easy: no need to plug in PC cables every time you download. Meanwhile, you can conveniently e-mail snapshots to family and friends using HP Instant Share™ and charge two Lithium-Ion batteries—one in the camera and one in the dock's spare battery bay.

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- Remote control
- Battery for remote control
- User's manual
- Warranty and regulatory brochure
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Canon EOS Digital Rebel Kit: how-tos

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Introduced in autumn 2003, Canon's 6.3MP (megapixel) digital entry into its popular Rebel camera line shattered barriers on how much digicam you could get for a street price of around $1,000. And it's still going strong.

The Rebel requires some setup before it's ready for use. First, mount the telephoto lens on the camera body by removing the protective caps from the camera and lens, lining up the white index marks on the lens and camera and then turning the lens clockwise until it locks.

Also, the Rebel uses a Li-Ion (lithium-ion) battery, which you'll need to juice up in the included charger unit. When the red status light stops blinking and remains on continuously, leave the battery in for one more hour to attain maximum charge.

The battery slides in through a door on the bottom of the hand grip. Finally, slide open the door at the rear of the grip to insert a CompactFlash memory card (label side facing the back). This is the one item you'll need to buy separately. Once it's in place, you're ready to shoot.

Crucial Settings

The first time you turn on the Rebel, it will prompt you to set the correct date and time. Use the Up/Down arrow buttons on the back panel to set each value and then press Set to move to the next value.

For shooting, the Mode dial is divided into two zones so you can easily adapt to different shooting circumstances. The Basic Zone consists of the full auto setting (for point-and-shoot simplicity) and presets that optimize the camera's response for various types of photos: Portrait, Landscape, Close-Up, Sports, Night Portrait, and a final setting that disables the flash. The Creative Zone lets you exercise more control, with your choice of aperture- and shutter-priority modes, full manual, and two more.

With the lens set on AF, pressing the shutter release halfway activates the autofocus, which uses seven points (visible in the viewfinder) to dial in a clear image. With the MF setting, you can manually focus the lens by twisting its front ring.

To adjust the image sensor's light sensitivity, press the Up arrow, which doubles as the ISO control and then use the Control dial on top of the grip to choose from 100 ISO (least sensitive, with smoother detail) to 1600 ISO (most sensitive, but grainy). To set photo size (Large, Medium, Small) and JPEG (Joint Photographic Experts Group) compression level (Normal, Fine), press the Menu button and then use the arrow and Set buttons to navigate to the Quality settings.

The range of effects: In the left shot, all four processing parameters were set to +2. On the right, all were set to –2.

How To Use Processing Parameters

If you're accustomed to taking film snapshots and getting back over-the-counter prints, you may have resigned yourself to accepting whatever the developers hand you. But digital imagery is malleable. And with the Digital Rebel, you don't have to get a photo inside your computer before you can exercise creative control.

The camera's processing parameters make qualitative determinations about what the image sensor captures. The four parameters are Contrast, Sharpness, Saturation, and Color Tone. To access them, press the Menu button, which calls up the Shooting menu. Use the Down arrow key to select Parameters. Then click the Set button to open the Parameters menu, which leads off with three presets:

Parameter 1 optimizes the camera to record vividly saturated colors. This is the default for all of the Basic Zone modes. Parameter 2 sets the camera for a more muted color response. Adobe RGB is a standardized color response used mainly in professional print production. Its muted color assumes that you'll be doing computer processing on the photo. You may want to use this if you've set the camera to take RAW (uncompressed) images instead of JPEGs, which you'll then work on in a program such as Adobe Photoshop, importing them through Photoshop's Camera RAW plug-in. But if this exceeds your intentions, you can overlook this setting.

Below these three settings, you can configure up to three of your own custom presets. Advance to the bottom of the list and choose Set Up. This accesses sliders for each of the four parameters. First, though, you'll need to establish the preset number: Use the Up/Down arrows and then press the Set button. As you move up and down the Parameters, press Set to activate any you want to adjust. You can change their values with the Left/Right arrow keys, increasing or decreasing them by one or two increments. To finalize a value, press Set again.

How might you use these? For one preset, you might boost Contrast, Sharpness, and Saturation for crisply detailed, vividly colored seasonal photos. For another, you might reduce Sharpness, Saturation, and Color Tone for soft, rosy-cheeked kids' portraits (reducing Skin Tone values emphasizes reds; increasing values emphasizes yellows).

Although there's nothing here you couldn't do with software, not everyone needs to invest in an expensive photo editor. If you prefer to print or view your photos with a minimum of post-shooting hassle, the processing parameters greatly expand your creative options. ce

BY BRIAN HODGE

HP Photosmart R707: how-tos

HP Photosmart R707
$349.99
www.hp.com

Taking pictures is easy. Taking outstanding pictures is more complex. With the HP Photosmart R707, expert photography becomes a less mysterious affair. It's a smart camera that provides step-by-step wizards to help you improve your digital creations. We'll show you the R707's basics, along with advanced information on how to use the camera's white-balancing feature.

The first thing you should do after you unpack the materials is charge the battery. Although HP sends a partially charged Li-Ion (lithium-ion) battery pack with the R707, it's always wise to fully charge the pack before you use it.

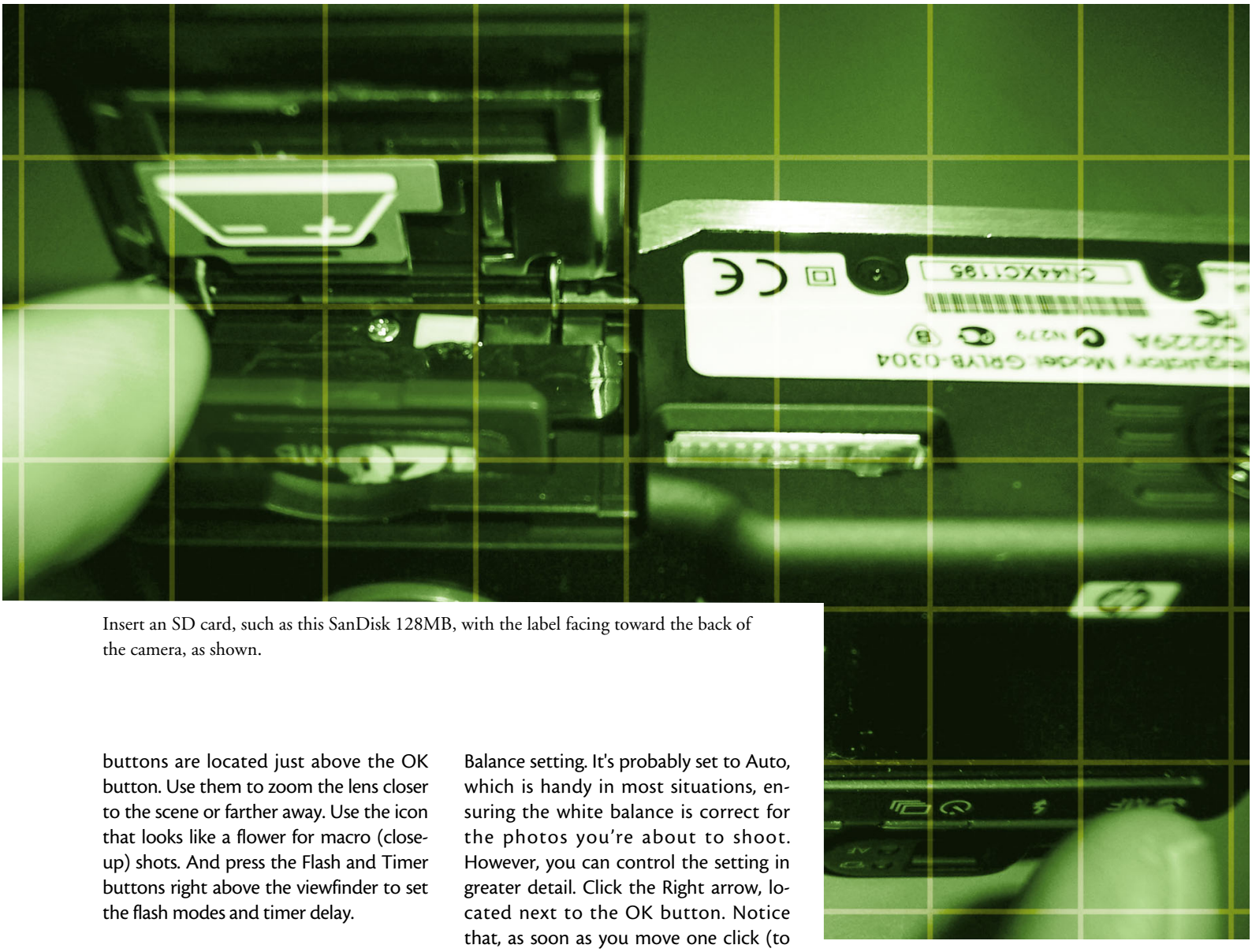
You'll need to insert the battery in the camera before you can charge it. Turn the R707 upside down and slide open the battery cover, and then insert the battery with the arrow pointing down and toward the back of the camera. There's a tiny blue prong that holds the battery in place—make sure it slips over the battery pack.

Next, insert a flash memory card. You'll have to buy the memory card separately, although the R707 includes 32MB of built-in memory. Insert the SD (Secure Digital) card with the notch facing down and the label facing toward the back of the camera. You should hear a quiet click when it's pushed in all the way. Close the cover.

Now, time to charge the battery. Plug the power cord into the AC adapter first and then into a wall outlet. Attach the camera power cord to the AC adapter and to the camera power port. (Look for a small rubber door on the side of the camera, right near the R707 name.) It will take about three to five hours to charge the battery, but you can use the camera while the battery is charging.

Now we're in business. Just slide the Power-on button to the right to turn on the HP R707. You'll see a prompt to select language. Select options by using the camera's arrow buttons so use the arrow keys to select your language and press OK. Next, select the date and time. Use the arrow keys again to make your selections and then press OK. Once you adjust these settings, you can start taking pictures.

Press the Mode button on the top of the camera to scan through available modes, such as Portrait and Sunset, until you reach the one you want. In Portrait mode, the camera uses a limited depth of field so the foreground image is clearer. The camera also applies other filters for clarity and smoothing of skin tones. In Sunset mode, the color temperature is set so that oranges and reds in a sunset look more vibrant. The red and blue Zoom



Insert an SD card, such as this SanDisk 128MB, with the label facing toward the back of the camera, as shown.

buttons are located just above the OK button. Use them to zoom the lens closer to the scene or farther away. Use the icon that looks like a flower for macro (close-up) shots. And press the Flash and Timer buttons right above the viewfinder to set the flash modes and timer delay.

Adjust The White Balance

If you press the OK button when the camera is in photo-taking mode, you'll see the Menu. Here, you can select various settings and options including MP (megapixels), ISO, and metering. These advanced options are more for those who want to experiment with their photos. White balance is a setting that you can use to improve the color in your photos by making sure the camera uses the proper lighting for the scene.

To access White Balance, open the camera's main menu and find the White Balance setting. It's probably set to Auto, which is handy in most situations, ensuring the white balance is correct for the photos you're about to shoot. However, you can control the setting in greater detail. Click the Right arrow, located next to the OK button. Notice that, as soon as you move one click (to the Sun setting), you'll see an adjusted image in the viewfinder. Use the Sun setting for outdoor, brightly lit areas. Use Shade for cloudy days, shady areas, or at dusk. Tungsten is the one you want for indoor settings using regular lamp bulbs (incandescent and halogen lights). Use Fluorescent for fluorescent bulbs. It's cool to see how the colors suddenly look more vibrant when you use this setting. Note that, when you use these white-balance modes, they will only be active while you are using the camera. As soon as you shut the camera off, the White Balance setting will return to Auto.

BY JOHN BRANDON

Sony Cyber-shot DSC-W1: how-tos

Sony Cyber-shot DSC-W1
$399.95
www.sonystyle.com

It's almost too easy these days to say that a gadget is about the size of a deck of cards, but regardless, with this camera the comparison fits.

Like most current cameras, the 5.1MP (megapixel) DSC-W1 comes with a rechargeable power source: two NiMH (nickel-metal hydride) batteries that slip into a compartment on the bottom. They're AA-sized, so if they ever run dry at the wrong time, you can switch to standard alkaline batteries to finish shooting. Our batteries came juiced up and ready to go, but if yours need a trip to the included charger first, be patient—these little puppies require up to six hours for a full charge.

You'll also definitely need to loop the DSC-W1's wrist strap onto the corner eyelet. With no obvious gripping points, this camera is just small and sleek enough to easily drop, although while shooting, the curved lip on the front gives your right middle finger a hold.

The only other preparation needed is opening the side panel and inserting a Memory Stick (contact points facing front). The camera comes with a 32MB Stick, which will hold only 12 photos at the highest resolution, so you'll probably want to add a larger capacity card.

Up & Running

When you turn the DSC-W1 on, its retractable lens telescopes out the front. The lens defaults to wide-angle view, but you can use the W-T rocker switch on the back to zoom in with the telephoto function.

The Mode dial, on top of the camera, is for basic control (we'll get to finer details later). It features a Set Up mode for configuring fundamental camera settings and Playback for reviewing what you've shot. For shooting, there's a full auto mode, plus Program (similar to Auto, but permitting adjustments), Manual, and Movie modes. You can also choose from six presets, half of which are for low-light situations: Twilight, Twilight Portrait, Candle, Landscape, Beach (for richer blues), and Soft Snap (for flattering close-ups). For general use, you'll probably want to stick with Auto.

When shooting, you can compose shots with the viewfinder or the LCD. If you're taking a close-up or precise framing is vital, use the LCD, which shows exactly what the lens sees; the viewfinder sees things from a slightly different perspective.

Press the shutter button halfway, and a green status light will blink while the camera determines the proper autofocus and auto-exposure. When the camera is ready to shoot, the light will

The Sony Cyber-shot DSC-W1's menu provides animated access to about a dozen settings for greater creative control, including, from left to right, focus method, ISO (light sensitivity), and white balance.

stop blinking, and you'll hear a double beep. Now press the shutter button the rest of the way to shoot the picture.

How To Use The DSC-W1 Menu

Although the DSC-W1's Mode dial will match the camera's response to a variety of situations, you can flex more creative control than may seem obvious at first. It all starts with pressing the Menu button.

You can access up to a dozen or so additional functions in the menu. To navigate the menu, use the Left/Right arrow buttons. Make adjustments using the Up/Down arrow buttons. The graphics use both subtle animation and audio feedback, so it's easy to tell what you're doing. When you're finished, press the Menu button again to exit.

However, the Menu lineup isn't identical in each mode. Instead, your choices are confined to what's likely to come in handy under the circumstances that would prompt you to select that mode. For instance, there's no need to adjust the flash in Landscape mode. Here are several items and how they might be useful:

EV. This lets you increase or decrease exposure value to compensate for tricky lighting, such as fresh snow whose bright reflections could fool the camera's auto-exposure into underexposing the photo.

Focus. By default, the DSC-W1 uses Multi AF, a method that analyzes different zones within a scene. You can switch to Center AF when you're shooting a clearly defined subject located in the middle of the scene. You can also use preset focus distances, as well, from 0.5 meters to infinity.

Metering mode. The camera defaults to a multiregion method for determining auto-exposure, just as it does for auto-focus. But Spot Metering is also available, so the camera analyzes only the light in the middle of the frame.

White balance. To maintain color accuracy, this lets you compensate for the effects of different lighting conditions, such as cloudy days and incandescent bulbs.

Recording mode. Normally, the camera takes single shots. In Burst mode, you can fire off an action sequence of multiple shots. In MultiBurst, the camera snaps 16 thumbnail images that are recorded in sequence on a single frame.

PFX. If color just seems wrong for a particular photo, you can opt for one of two effects, either giving it a sepia tone or shooting in moodier black-and-white.

Finally, you can independently increase or decrease color saturation, contrast, and sharpness.

BY BRIAN HODGE

Panasonic PV-GS15 Camcorder: how-tos

Panasonic PV-GS15 Camcorder
$499.95
www.panasonic.com/flash.html

If you want to record home videos for editing on your computer, a MiniDV camcorder is the way to go. The Panasonic PV-GS15 is a feature-packed MiniDV cam, and with a street price of around $400, it's an inexpensive, well-rounded camcorder for budget-minded buyers.

The PV-GS15's setup is pretty straightforward. After you charge the battery, insert a MiniDV tape and the included SD (Secure Digital) card. On the back of the cam, you'll see the Power switch and mode dial. To record a movie, flip the Power switch to On and then turn the dial to the movie-camera icon. Within easy reach of your thumb is the Record button; press it to start taping and again to pause.

You can use the viewfinder to frame your shots while recording, but the LCD provides a more convenient view. Flipping open the LCD disables the eyepiece viewfinder and provides access to the camera's main control panel. You can rotate the LCD so you can see it while you shoot from waist level or above your head, or you can turn it around to film yourself.

The camera gets up close and personal with a 24X optical zoom lens. (In 35mm camera terms, that's roughly a 950mm lens.) The W-T switch controls the zoom. The camera offers electronic image stabilization which can help keep the image steady at high zoom levels, but only to some extent. You'll still need a tripod for faraway shots. To enable or disable image stabilization, press the Menu button and use the arrows to select Camera, EIS, and then On or Off.

Right underneath the EIS setting in the menu is the Digital Zoom option. Digital zoom provides magnification of up to 800X but significantly sacrifices image quality in the process. The optical zoom is more than adequate for most recording situations.

There are many buttons on the main control panel, a few of which are essential. The Back Light button increases the exposure to lighten the subject. That's not to be confused with the Light button, which illuminates the small, four-LED lights under the lens and helps illuminate nearby objects in the dark.

An external microphone jack is under the lens. The internal mic has a wind noise reduction feature; to enable or disable it, press Menu and then select Recording, Wind Cut, and On or Off. The microphone increases in directional sensitivity as you zoom in to better pick up far-away sounds.

When you're trying to capture the highlights of your kid's soccer game, you can't

The PV-GS15 has several buttons hidden under the viewfinder door.

keep the camera running all day, but you might miss important shots by waiting for it to turn on. Use the Quick Start button, located near the On/Off switch, to fire up the camcorder quickly. Press it to enable a low-power standby mode. When you turn the camcorder on again, it will be ready to record in just a second and a half.

The camera's automatic focus and exposure are spot-on, but if you prefer to take matters into your own hands, the camera will relinquish control of focus, shutter speed, and aperture adjustments. On the control panel, slide the Auto/Manual switch to Manual and then press the Enter button to adjust these settings.

Hanging In The (White) Balance

Like most camcorders, the PV-GS15 automatically adjusts the white balance. If you don't know what white balance is, you aren't alone.

Different types of light (incandescent, fluorescent, and so on) have different color temperatures. An incandescent light might have a color temperature of 2,850K (Kelvin), which is lower than the 5,500K of midday sun. Without proper white balance, the pictures you take indoors can look reddish, and the noontime outdoor shots can appear bluish.

Automatic white balance tries to correct these differences by guessing the type of light you're using. Because these guesses aren't always perfect, automatic white balance doesn't always eliminate color cast. Most cameras also have a manual white-balance setting. Here's how to adjust the white balance on the PV-GS15.

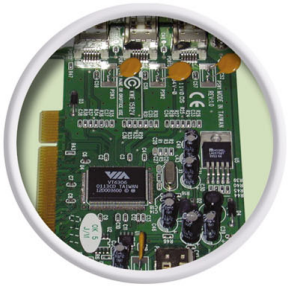
First, flip the Auto/Manual switch on the main control panel to Manual. Press the Enter button; the letters AWB will appear on the screen. Now press the Left and Right arrow buttons to select a white balance mode. The sun icon indicates outdoor mode, and the light bulb indicates incandescent lighting.

For unusual lighting situations—if there are multiple sources of light, for example—choose the manual lighting icon, which is cryptically indicated by two triangles and a square. Point the camera at a white object and fill the frame with white. Press and hold the Enter button until the icon stops flashing. The white balance is now manually set, and colors in your video will look more natural.

To return to automatic white balance, press the arrow buttons until the AWB icon reappears. Or push the Auto/Manual switch to Auto for full automatic mode. If you move to a different light source and don't switch to Auto or reset the white balance manually, your images will have a distracting red or blue cast.

BY KEVIN SAVETZ

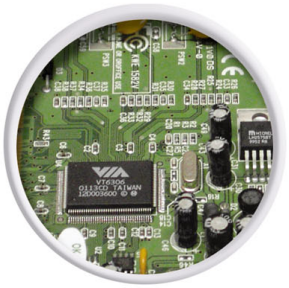
dejargonator:
Optical vs. Digital Zoom



An older Nikon Coolpix 850 at full optical zoom.

Note the degradation of the image with the older Nikon's full digital zoom.

Toshiba PDR-4300 at full optical zoom.



Though far superior to the digital zoom of the older Nikon, the quality of this full-digital-zoom image still compares poorly to the full-optical-zoom image.

Zoom capability—the ability to magnify the image that you're recording—is an important feature when you're looking for a digital camera, but don't assume that the greater zoom factor is automatically better. Look closely: Most digital cameras have two maximum zoom factors, one for optical zoom and another for digital zoom.

Optical zoom changes the focal length of the camera by physically moving the outermost lens. In a few of the least expensive cameras, you accomplish this by manually rotating a geared ring, but most digital cameras now have motorized zoom assemblies, controlled by a convenient, electronic switch.

With **digital zoom**, the magnification is accomplished via software. The original image is internally enlarged through an interpolation process that artificially creates image data that wasn't available as it came through the lens.

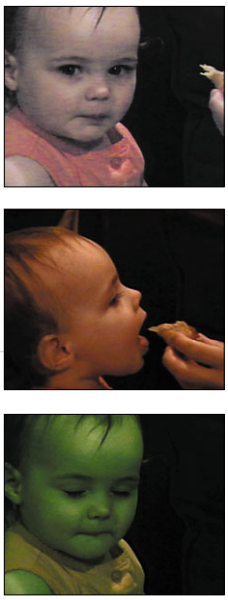
Cameras often come with both optical and digital zoom. When a user zooms in, the optical zoom is engaged first. When the optical zoom reaches its limit, magnification pauses to notify the user that optical zoom is at maximum. If the user continues to zoom, digital zoom takes over.

Typical optical zoom factors range from 2X to 10X, and you can safely expect image quality to remain constant through the range. Digital zoom may offer magnification factors in the hundreds, but the image quality varies wildly in different cameras and is virtually always inferior to optical. Before buying a camera based on its digital zoom claims, check sample images shot through that model at various digital zoom settings.

BY JERRY HATCHETT

tips

Shooting Digital Video



One baby, three different skin tones: At top, the camera's white balance control keeps the lighting looking natural. In the middle, uncorrected tungsten lighting gives the scene an orange cast. This may look unnaturally warm, but it's not nearly as unsightly as the greenish tint caused by uncorrected fluorescent lighting, at bottom. No wonder she'sstopped eating.

1 Watch your light source. As with still photography, the lighting when using a camcorder can be friend or foe. Ambient lighting, such as daylight on a cloudy day, usually presents few problems. But if you're shooting around a strongly directional lighting source, such as the sun on a cloudless day, try to keep it at your shoulder (which will illuminate your subject from the side with gentle shadows revealing surface detail) or at your back (which will light your subject full-on). Just don't shoot with the light source behind your subject unless you deliberately want a silhouette. Video's mobility means you need to adopt a degree of omniscience and avoid getting so caught up in the action that you stray from a perspective that offers proper lighting to a perspective that throws it off.

2 Keep colors true. Your camcorder should have a white balance control, which helps reproduce colors more accurately by compensating for variations in the frequency spectra emitted by different lighting sources. (For instance, uncorrected fluorescent light-ing can give your subjects a green tint.) Most camcorders, by default, automatically adjust the white balance. Even so, it's worth checking your camera's auto response and performance under various lighting conditions, such as daylight, shaded, cloudy, fluorescent bulb, or tungsten bulb, and then reviewing the footage to scrutinize for color consistency. If it seems to fluctuate under one or more lighting types, try using the camera's white balance preset for that particular source. Also, when possible, avoid mixed lighting sources, such as fluorescent and daylight, which your camera likely won't sort out well. If you can't avoid the mix or block off one source, set the camera's white balance for what seems to be the primary source of light.

3 Walk their way. Whenever it's feasible, get physically close to your subject and use a wider lens setting rather than relying on the telephoto function to zoom in close. The image shake that's a normal side effect of operating a handheld camera will seem more pronounced if you're using the telephoto to cover the distance. This may result in footage that feels jittery despite the camcorder's image stabilizer. Also, your audio will come out clearer because the telephoto function is limited to the picture and not sound. If you can't physically move close to the subject and have no choice but to use the telephoto—at a grade school pageant, for example—affix the camera to a tripod.

4 Keep rolling. When shooting video, continue filming for several seconds after you might otherwise cut off the scene. When cameras pause or go into an energy-saver hibernation or shut down after a period of disuse, they sometimes rewind slightly and don't return to the exact stop point. (We're talking only about MiniDV tape units, not DVD-based camcorders.) We've noticed this even with camcorders that claim to return to the end of the recorded portion. By rolling those extra few seconds, you can avoid inadvertently recording over the material you want to keep the most when you resume taping.

5 Hit the cutting room floor. Most cameras will let you port your raw video footage into a computer through a digital video cable where you can manipulate it with an editing program. (With DVD cams, you may be able to simply transfer video by disc.) Review your raw footage a few times and keep notes of what you want to keep or scrap and how you want to piece it all together. Jotting down the time code will help you keep track of scenes. As you start arranging your keeper clips, avoid going overboard with effects and transitions. Quick, simple dissolves usually get the job done without calling attention to themselves. Unusual transitions will draw your viewer's attention away from the story you're trying to tell.

BY BRIAN HODGE

Handspring Treo 600: how-tos

A color PDA and a top-notch cell phone combine with numerous applications to make this smartphone a one-stop communication assistant.

Out Of The Box

It slices, it dices, it lets you communicate in every way you can imagine. It even surfs Web sites and takes digital pictures. At $599 the Handspring Treo 600 won't be the cheapest piece of electronics you'll ever buy, but given the fact that it replaces both your cell phone and your PDA, it could prove a bargain anyway. Major cellular service providers, such as AT&T, Sprint, and Cingular, offer good deals if you buy the phone with their service packages. For example, the phone with AT&T service costs only $349 after signing up for its two-year service with data option and after a $100 mail-in rebate.

Once you have the Treo 600, you charge the battery, power it up, and use it to call the service provider and activate your account, and you're ready to go. You can make phone calls by using the phone keys on the small keyboard (these keys are highly visible because of their reverse coloring) or the on-screen buttons, and you can also use the keyboard to send text messages and email. The Blazer Web browser lets you surf your favorite sites and search for any information you need—especially handy if you're out in the car and you suddenly realize you need to find details for a meeting, a shopping trip, or a place to stay. You can even take pictures with it, a feature covered in detail below.

To fully use the Treo 600, as with any PDA, you'll want to synchronize your contact, appointment, and other PIM (personal information management) data between your Treo and PC. To do so, install the Palm Desktop and Handspring HotSync software, which come with the Treo. If you use Microsoft Outlook as your PIM, you can also install a conduit application that syncs Outlook's data with the Treo 600's. When you run the included cable from the Treo 600 to the PC (through a USB port), the HotSync application transfers the data to both devices, bringing them up-to-date. The Treo 600's feature integration is such that you dial your cell phone directly from the Palm Desktop screens or from any email message sent from anyone whose telephone information you have recorded in your contact database.

To use email, you need to set up an account and use email software designed for these devices. The Treo 600 ships with palmOne's Mail program, but you can opt for AOL 3.2.1; Visto Mobile Personal Edition; or software from Sprint, Good Technology (Microsoft Outlook users), Intellisync (Lotus Notes users), or Notify Technology (Novell GroupWise users).

Handspring Treo 600
$599
web.palmone.com

After getting your Treo 600 set up, you'll discover that it's not much larger than today's cell phones (it fits in a shirt pocket or a small purse), it operates as a speakerphone with good audio quality, and you really can type on the well-designed keyboard with your thumbs.

Taking & Sending Pictures

The Treo has a built-in 640 x 480 VGA (Video Graphics Array) camera. To take a picture, turn on the Treo 600 and, from the main menu screen, click the Camera icon. You can do so by using the navigation buttons to highlight the icon and the Select button to choose it or by tapping on it using the stylus. Immediately, the display becomes a viewfinder, showing the scene behind the device; in other words, the lens is at the back. Maneuver the phone to show the scene you want—the camera autofocuses—and press the Capture icon on the display or the Select button. You hear a simulated shutter sound, and the display shows an icon asking if you wish to Save or Send. If you want to keep the picture, save it to the unit's memory; to send it, click the Send icon instead.

To send a photo via email, click the Send icon after taking the picture or choose a picture from your photo gallery and click the Send icon from there (you access the photo gallery by pressing the gallery icon on the camera display). In both cases, from the resulting Send With menu, choose the email program you wish to use (palmOne Mail by default). A new message appears with the file shown as an attachment. Type in the recipient's address and any subject line and body text you wish to include and click Send. The Treo automatically connects to your mail server and sends the message with the photo attached.

And what can you do with saved pictures? First, you can load them and view them whenever you wish. Second, you can choose any picture you've taken as the wallpaper for the Phone display; choose Options from the pull-down menu, click Display Preferences, click Show Wallpaper, click the picture icon, and choose the photo you want (it replaces the default dial pad display). Finally, you can attach a photo to a contact so that the picture appears on the screen whenever that person calls you. In the latter case, when taking the photo, you'll probably want to press the picture size icon in the top-left corner of the camera display so that you can store vastly more pictures in the Treo 600's memory (3,400+ vs. the standard 500+).

Note that the camera has no flash. It is clearly meant to be used outdoors or in an extremely well-lit area, so don't expect to use the Treo 600 as your primary digital camera. ce

BY NEIL RANDALL

Samsung SGH-D415: how-tos

Bite your nails? Have large or clumsy fingers? Wish you could pop open your cell phone using one hand instead of two? The things that make unflipping a flip phone less than a snap for you are not an issue with the Samsung SGH-D415—a multifunction camera with a display panel that slides, with a gentle push of your thumb, to reveal its number keypad.

Set It Up

The SGH-D415 is made specifically for T-Mobile customers. To use the phone, you have to install your T-Mobile SIM card in the phone. If necessary, remove the phone's battery. Slide the SIM into the socket, making sure that the gold-plated contacts on the card face into the socket (and touch the contacts in the socket). Then, replace the battery.

Next, charge the battery. Locate your travel adapter, which doubles as a battery charger. With the battery connected to the phone, plug the connecter end of the adapter into the jack at the bottom of the phone; with the phone's screen facing up (the yellow arrow on the connector should be visible), plug the adapter into an outlet and wait. Although subsequent charges may take less time, your first charge might take an hour, or two, or more. When the battery is charged, *first,* unplug the adapter from the wall outlet and, *then,* disconnect it from the phone; reversing this order could damage your phone.

Before attempting anything else, familiarize yourself with the keypad beneath the display. The large button in the center is the navigation button. Press its edges to scroll up, down, left, or right through menu options and press the center to browse miniature WAP (Wireless Application Protocol) Web pages (if you've purchased that service). The top-left and top-right keys are the soft keys that you press to execute the commands that appear in the bottom left or right of the screen, respectively. The bottom-left key is the send or dial key; the bottom-right key is the power on/off key; and the bottom-center (C) is the cancel or correction key, which cancels an ongoing action or deletes text one character at a time.

Now you're ready to get on your T-Mobile network. Press and hold the phone's power key until the phone turns on. The first time you turn it on, the device may prompt you to enter a password, which is preset to 00000000 (eight zeros) at the factory; consult page 159 of your users manual to learn how to change it. It'll definitely prompt you to enter a PIN (personal identification

Samsung SGH-D415
www.samsung.com/products/mobilephone
$300

number), which was (or should have been) supplied with your SIM card. Once you enter your PIN, the phone finds your network and displays the T-Mobile opening screen. Now, you're ready to make calls, take pictures, send text and email messages, record audio and video, or do any of the other things the SGH-d415 lets you do.

Enter Text With T9 Mode

Most mobile phones let you enter text by pressing the corresponding number keys multiple times until the correct letters appear. Typing **rose**, for example, requires twelve keystrokes (**7-7-7-6-6-6-7-7-7-7-3-3**). The SGH-d415 has a text entry feature, called T9 mode, that can save you keystrokes by "guessing" what word you're trying to type based on single presses of the appropriate number keys. Type **7-6-7-3** in the SGH-d415, and it guesses the word "rose" and cuts your keystrokes by two-thirds.

T9 mode is the phone's default text-entry mode when you compose a text message, an email, a contacts entry, and so on. To try it out, press the Menu key (the left soft key), scroll up or down using the central navigation key until Text Messages is highlighted (in the center if the display, with a picture), press the Select key (the left soft key), and press it again to select Write New. Start typing, pressing—once—the number key corresponding to each letter. As you type, T9 will keep guessing your word until you finish.

In most cases T9 guesses correctly (it's uncanny, actually), but when a group of keystrokes might correspond to two or more words, it needs help. For example, suppose you want to type **no**, which has the same keystrokes as "on." Press 6 twice and the word "on" appears. Press the 0 (zero) key once to display "no." Pressing the 0 key additional times reveals other options, such as "mm," "mo," "om," and "oo." When the word you want appears, press the pound key (#) to insert a space.

In the rare cases when T9 can't guess your word, you'll have to add the word to its dictionary. Again, after typing the appropriate keys, press the 0 key until T9 cycles through all the options and the word "Add" appears at the bottom left of the screen. Press the left soft key; the Add Word screen appears, and the phone automatically switches to Alphabet mode. Use the Cancel key to erase the word and use the number keys—pressing them until the appropriate letter appears—to type the word you want to add to the dictionary. When you've finished typing the word, press the left soft (OK) key to add the word to your dictionary and return to your text message. Press the right soft key repeatedly until the text mode changes back to T9 and continue typing.

BY MARK SCAPICCHIO

Garmin StreetPilot 2620: how-tos

Right out of the box, the StreetPilot 2620 shows you where you are and tells you how to get wherever you want to go.

For $1,516.50, the Garmin StreetPilot 2620 lets you throw away those unfoldable road maps and stop pondering directions from well-intentioned friends and family. Set the 2620 on your dashboard (it has a weighted stand), run the power cord from the unit to your car's cigarette lighter, turn the device on, and wait a minute or so for it to acquire a signal from one of its 12 possible satellites. Use the map or street/intersection database to set your destination and let it tell you—in a clear, remarkably unobtrusive voice—how to get there.

Immediately Useful

What makes the StreetPilot immediately useful is the built-in MapSource City Navigator North America. You don't need to download maps; it recognizes where you are and calls up the map from its hard drive. The drive has 512MB for additional maps, including the European versions of City Navigator, which you can buy separately (Europeans receive this instead of the North American maps).

To control this device, you can use either your fingers or the included remote control. You'll quickly discover that your fingers work as well as or even better than the remote for configuring options but that the remote becomes the only truly viable option once you have the StreetPilot in place atop the dashboard with you strapped into the driver's seat. Obviously, you don't want to use either method while actually driving, but a passenger can command the remote and make sure you get all the information you need by adjusting the 2620's settings.

Options are plentiful. You can set the StreetPilot's voice to speak in any of numerous languages, and you can change the language of the text on the map, as well (the 2620 includes 14 languages for text). The unit gives you distances in statute (miles, feet, etc.) or metric terms. If you deviate from your route, the unit automatically recalculates a new one and tells you it has done so, unless you configure it not to recalculate or not to tell you it has done so. In addition, put the device in Safe Mode to disable all commands that might prove dangerous for the driver, including creating new routes, the Find feature, and all configurations.

The 305 x 160 pixel color LCD offers clear, bright graphics, with maps visible even in strong sunlight. You can set up to 500 waypoints (saved destinations), you can track up to 2,000 waypoints,

Garmin StreetPilot 2620
$1,516.50
www.garmin.com

and you can specify multiple destinations for any trip.

Set Your Destination

The primary purpose of an automotive GPS receiver is to help you find your way to specified locations. You begin your journey, therefore, by setting a destination manually or by selecting one from the built-in database. This database includes hotels, restaurants, attractions, gas stations, and street intersections for locations throughout the United States and for towns and cities in Canada.

To set a destination manually, press the Menu/Route button on the receiver or the Menu button on the remote. Select the Route icon followed by the New icon. In the resulting Start Point menu, choose the Current Location icon if you want to begin from where you currently are, or select Map if you want it to start from a specified location on the map. Selecting the Current Location choice (which you'll use most frequently), you next choose Map or Find on the End Point menu.

If your destination is within a few miles of your current location, and you know your way around a map, the Map option will probably always prove the faster (we'll get to Find in a minute). Scroll the map by using the thumb stick (like a small joystick) on the remote and moving it in the direction you want or by pressing on the 2620's display and moving the map as you wish. The zoom icon on the display lets you change your perspective on the map to help with finding your destination; zoom out for larger distances and in for shorter (the remote's zoom buttons do the same thing).

Once you pinpoint the destination, select the OK icon (or press the thumb stick) to select it. Now, from the Route Preference menu, choose between Faster Time or Shorter Distance. As soon as you make this selection, the StreetPilot calculates the route and gives you your first instructions, telling you which direction to drive and when to turn onto a new street. The voice doesn't name the streets or routes, but the map does, displaying intersections clearly.

Setting your destination with Find lets you specify street intersections, street addresses, or points of interest within the 2620's database. You can search for these locations by criteria such as along the route, near your current location or destination, or within a specific distance from a particular location. Select the point of interest and the 2620 calculates your route. You can also use the Find feature to locate specific highway exits.

Between the StreetPilot 2620 and a cell phone, there's really no reason to get lost ever again. ce

BY NEIL RANDALL

D-Link AirPlus Xtreme G Wireless Router: how-tos

D-Link AirPlus Xtreme G Wireless Router
$85
www.dlink.com/products

Getting the AirPlus Xtreme G set up to serve your broadband connection to several computers is a cinch, provided your cable or DSL (Digital Subscriber Line) modem connection is working. After removing the router and its included accessories from their packaging, plug the AC adapter into a wall outlet and the adapter cord into the back of the router. The AirPlus immediately springs to life, flashing its LED indicators as it searches for a network. Turn off your broadband modem, by unplugging it if necessary, and attach one end of the included network cable to the modem's Ethernet port. Turn the modem back on, allowing a few seconds for it to connect to the service provider's WAN (wide-area network). Then, plug the other end of the network cable into the AirPlus' WAN port.

To configure the router, use another Ethernet cable to connect your computer to port 1 on the back of the unit. Open a browser window, such as Internet Explorer, and type **http://192.168.0.1** into your browser's Address bar. This request prompts the router to serve up its Web-based configuration utility, which is password protected for security. The D-Link's default login name is admin, and there's no password set, so type **admin** in the Name field and click Log In.

The configuration page has category tabs across the top and settings for each category down the left side. There are lots of options to explore, but configuring basic settings is especially easy with the included wizard. Clicking the Run Wizard button on the main page will start the process, which will prompt you to create a new security password and set the time zone, and then it automatically detects most of your network settings. The wizard will prompt you for settings it can't detect; if you are unsure of any, call your ISP to get them. After finishing the connection details, you can enter an SSID (Service Set Identifier), or network name, to identify your wireless network and choose whether to enable WEP (Wired Equivalent Privacy) encryption. When the wizard finishes, you'll need to click the software panel's Restart button to reboot the router and let the new settings take effect.

Connecting computers with a wireless connection is as easy as choosing the SSID that you specified during the router setup in each machine's wireless control panel. Depending on the wireless card and OS you use, the computer may even detect the network automatically. To connect using a cable, you'll need to ensure that your computer is set up to get its network IP (Internet Protocol) address automatically using DHCP (Dynamic Host

Configuration Protocol). In Windows, look for this setting in the Internet Protocol (TCP/IP) properties panel.

Parental Controls & Filters

If you're a parent installing a wireless router in your house, the freedom of the connection makes it harder to be sure your kids are surfing the Web safely and responsibly; they could be connecting from anywhere! The AirPlus Xtreme G's parental controls make it easy to establish some control over the content that comes into your house. In the Web-based configuration utility, accessible by typing **http://192.168.0.1** in your browser's Address bar, click the Advanced tab and then Parental Control. Click URL Blocking and Enabled. URL blocking searches every Web address for keywords in its warning list. For example, if you don't want your kids to view any Web pages about fish, putting "fish" on the list will block sites such as www.fish.com and www.petstation.com /fish.html. However, the router won't block pages that contain the word "fish" in the text but not the page name and URL, such as the U.S. Fish & Wildlife Service: www.fws.gov. It will also block sites such as Fisher-Price (www.fisher-price.com) that have nothing at all to do with fish. Still, it's a good start. Because most search engines return search terms in the page address of their results, finding pages to get around the filters can be surprisingly difficult. To add a word, type it in the available field and click Apply to save your changes.

If you want to retain supervision of your kids when they use the Internet, or perhaps enforce the 21st century equivalent of a no-TV-for-a-week grounding, you can remove access for some computers on your network without disabling access for others. In the Advanced tab, select Filters. Click the MAC Filters button and then Only Deny Computers With Addresses Listed Below. Type a name for the offending computer, for example, Junior's Computer, and its MAC (Media Access Control) address and then click Apply. You can find the MAC address by opening a command window on the target computer and typing **ipconfig /all**. The MAC address for each network adapter will be referred to as the Physical Address. It's a string of six groups of two letters and numbers, such as 00-B0-D0-74-D2-79. MAC addresses are typically hardwired into network card hardware, so unless you have a young Einstein on your hands, you probably don't have to worry about Junior hacking his way back onto the 'Net. If you're looking for a more constructive approach, back in the Parental Controls menu, click Domain Blocking and then Deny Users To Access All Domains Except Permitted Domains. Then you can construct a list of appropriately educational domains.

BY JOESEPH S. BELL

AirPort Express: how-tos

Apple's AirPort Express is a low-cost wireless access point, that you can use to stream iTunes music to your home stereo. You'll need a Mac or Windows PC with a wireless network card installed. Connect your Ethernet cable from your cable or DSL (Digital Subscriber Line) modem to the AirPort Express. If you have a USB printer, connect that and plug the AirPort Express into the wall.

To install the AirPort Express software, insert the device's CD in your CD-ROM drive. Click Setup.exe and follow the on-screen directions. Once installed, run the AirPort Express Setup Assistant.

From the Setup Assistant welcome screen, click the option to set up a wireless network for the first time and click Next. Turn off firewall software on the PC on which you're setting up, including the Windows XP firewall. You may leave an activated hardware firewall on an existing wireless router. If you leave the software firewall on, however, the Setup Assistant can't communicate with the AirPort Express.

Now, set a password and choose the encryption you want to use. Newer wireless cards support WPA (Wi-Fi Protected Access); use this if your PC's wireless card supports it. Otherwise, choose 128-bit WEP (Wired Equivalent Privacy) encryption. Although the AirPort Express will work without encryption, running it without security is like leaving your front door open. It only takes a moment to set up the encryption, and it's vital to ensure the security of your home network. In addition, give the AirPort Express itself a unique name, as well as a setup password.

Your PC will now join the network automatically, and if everything's set up correctly, you'll be able to access the Internet, as well. The AirPort Express lets you connect 10 PCs to your network, including laptops. You'll need to assign passwords the first time other PCs connect to your network.

Connecting a printer to the AirPort Express using a Mac is easy. When the printer is connected to the USB port on the AirPort Express, go to the Printer Setup Utility (located in Applications and Utilities) and select your printer. On a PC, go to the Printer And Faxes portion of the Start menu and click Add A Printer. Select Local Printer Attached To This Computer and deselect Automatically Detect And Install My Plug And Play Printer. Create a standard TCP/IP (Transmission Control Protocol/Internet Protocol) port from the pop-up menu and use 10.0.1.1 for the IP address.

AirPort Express
$129
www.apple.com/airportexpress

AirTunes Setup

Apple's AirTunes lets you stream music wirelessly from your PC to your stereo. To set up and configure AirTunes, find a power outlet near your stereo. You'll need a Y-cable, which you can find at most electronics stores. On one end is a stereo minijack (like a regular headphone plug) that connects to the AirPort Express. On the other end, there should be stereo RCA connectors that split off in a Y-pattern from the stereo minijack. Connect the red (right) and white (left) plugs to any available input on your stereo system. Common free inputs are marked AUX or MiniDisc.

Make sure you're using iTunes 4.6. If you don't have the latest version, head to Apple's Web site (www.apple.com), go to the Downloads section, and grab a copy. One of the new features in iTunes 4.6 is support for AirTunes. Here's how to activate it: Click Edit and Preferences. Put a check in the box that says Look For Remote Speakers Connected With AirTunes.

Disable the iTunes volume control by putting a check in the box next to Disable iTunes Volume Control For Remote Speakers. The volume slider will work only for the PC and any speakers connected to it. You'll be able to control the volume of the stereo system from that end. Otherwise, you'll have two volume controls for the same stereo, and that can get confusing.

If everything's working, you'll see a drop-down menu in the bottom right of the iTunes window. Click this menu and select your AirPort Express. Now, double-click any song you wish to hear. There'll be a slight delay—maybe one or two seconds while iTunes locates the AirPort Express—and then you'll have music streaming wirelessly to your stereo.

Select a destination for the music: your PC or the AirPort Express. If you have a stereo in another room, you can buy a second AirPort Express and connect it to that stereo, as well. You can then switch between them using your PC as a master controller and music repository.

Plug powered speakers into the AirPort Express, but you'll have to go to the PC to change the volume, so you may want to use speakers with their own volume control. Still, you have to select music via the main PC. Set up playlists for when you are in the room that has the AirPort Express; otherwise, you'll have to go back into the room with the computer to choose different songs.

The AirPort Express puts wireless networking and printer sharing in a tiny package. With AirTunes, playing music from CDs may be a thing of the past.

BY JAMIE LENDINO

LST-4200A Advanced HDTV/Analog TV Receiver

The newest addition to LG's digital set-top box lineup, the cost-effective LST-4200A combines ATSC, NTSC, and QAM (unscrambled) tuners; PSIP electronic program guide capability; and multiple outputs, including DVI+HDCP, RGB, HD component, and NTSC for native and converted modes.

- HDTV Receiver—Receives over-the-air HDTV signal, digital cable (unscrambled), and analog signals.
- Advanced Connectivity—Includes component, S-Video, DVI, composite, and RGB jacks.
- 5.1 Channel Dolby® Digital Sound—For the ultimate in surround sound.
- ATSC/NTSC/Clear QAM Tuner
- 3:2 Pull-down Cinema Correction
- DVI with HDCP
- Noise Free VCR Recordings with Simultaneous 480i Output
- Electronic Program Guide for Air HDTV Signal

LG Life's Good

music & movies

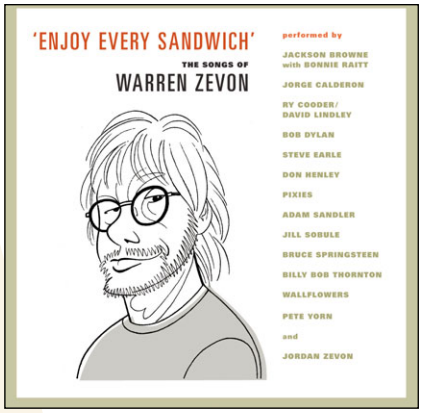
music

recently released

Minnie Driver, "Everything I've Got In My Pocket": Yep, another actor tries music, but she was a singer first, so give it a chance.

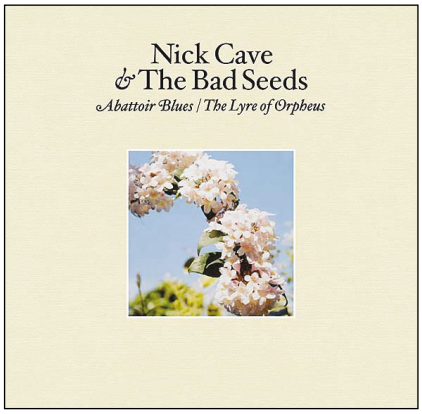
Tom Waits, "Real Gone": He's odd, he's quirky, and he's a songwriter extraordinaire.

R.E.M., "Around The Sun": All new songs from the boys from Athens, Georgia.



"Enjoy Every Sandwich: The Songs of Warren Zevon"

Various Artists
$14 • Available: Oct. 19
Helping to keep Zevon's memory alive is this collection of his songs performed by the likes of Bruce Springsteen, Don Henley, Steve Earle, and Bonnie Raitt.

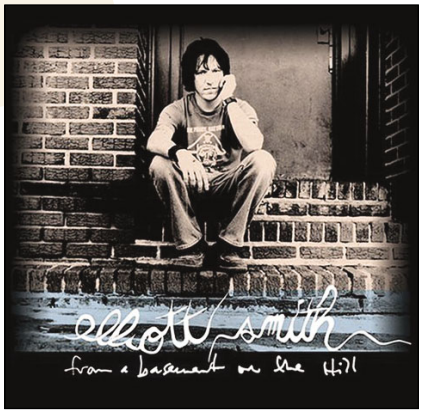


"Abattoir Blues/The Lyre of Orpheus"

Nick Cave & The Bad Seeds
$20 • Available: Oct. 26
Goth's reigning poet laureate delivers this two-CD set of what promises to be more mayhem, darkness, violence, and stark, lyrical madness.

"Astronaut"

Duran Duran
$19 • Available: Oct. 12
The boys are back. Look for the special, limited version of this release, which features a 45-minute DVD of concert footage and interviews, plus a 24-page booklet.



"from a basement on the hill"

Elliott Smith
$14 • Available: Oct. 19
This posthumous release features 15 tunes that the Oscar-nominated songwriting master had nearly completed before his all-too-soon death last year.

"Dear Heather"

Leonard Cohen
$14 • Available: Oct. 26
This follow-up to Cohen's 2001 "Ten New Songs" includes 12 new songs from the legendary singer/songwriter, plus his rendition of "Tennessee Waltz."

movies

"Star Wars" Trilogy

$41.99 • Available: Sept. 21
"Episode IV: A New Hope," "Episode V: The Empire Strikes Back," and "Episode VI: Return of the Jedi" make it onto DVD for the very first time. These aren't exactly the same movies you remember from your youth or even from the special edition rereleases in 1997. For the most part, the changes are improvements, but there are a few that will leave fans of the originals displeased. These films are classics, and we continue to hope that director George Lucas will release the unchanged originals one day. The video quality of all the films is first-rate, and these fan favorites have never looked better than they do now. A fourth "Bonus Material" disc includes documentaries, trailers, TV spots, and more.

"Aladdin" (Disney Special Platinum Edition)

$29.99 • Available: Oct. 5
Originally released in 1992 and now finally released as a remastered, souped-up, two-disc special edition DVD, Disney's "Aladdin" is based on the classic fairy tale of the good-hearted thief who turns out to be a prince. Having Robin Williams in the role of Genie works wonders for the film. What's the moral of the story? Be yourself no matter what they say.

"Hellboy" (Director's Cut)

$34.95 • Available: Oct. 19
Director Guillermo del Toro does a splendid job of adapting this comic book fantasy to the silver screen. The theatrical version of "Hellboy" was released as a two-disc special edition in July, and this three-disc director's cut comes in 10 minutes longer. Just in time for the holidays.

"Shrek 2"

$29.99 • Available: Nov. 5
Mike Myers, Eddie Murphy, and Cameron Diaz are joined by the likes of John Cleese, Julie Andrews, Antonio Banderas, and Rupert Everett in the entertaining sequel that takes off where the original ended. This release will be available in both full and widescreen packaging and also as "Shrek: The Story So Far," which includes the original, "Shrek 3D" (with 3D glasses), and "Shrek 2" for $54.99.

"Seinfeld" Gift Set (Seasons 1 to 3)

$119.95 • Available: Nov. 23
This eight-disc release can be found at a street price as low as $77.97. You'll get 41 remastered episodes of the TV sitcom classic along with Monk's Diner salt and pepper shakers, the original script (with handwritten notes from "Seinfeld" writer/actor/producer Larry David), deleted scenes, outtakes, bloopers, and much more.

recently released

"Gone With The Wind": Here's a film that needs no introduction. This four-disc collector's edition features the film (along with film historian Rudy Behlmer's commentary) spanning two discs and two discs of bonus materials.

"Dr. Strangelove (Or: How I Learned To Stop Worrying And Love The Bomb)": Stanley Kubrick directs Peter Sellers and George C. Scott in this 1964 classic.

"The Day After Tomorrow": One of the summer's top blockbusters blows onto DVD in both full-screen and widescreen editions.

games . . .

for you and the people in your life

PlayStation 2

Gran Turismo 4

Sony's fantastic racing franchise is back better and bigger than ever this year in Gran Turismo 4. Drive more than 500 cars digitally re-created with absolute realism in every detail; customize your cars just the way you like them and then take them for a spin on around 100 courses.

EVERYONE E CONTENT RATED BY ESRB

$49.99
Sony Computer Entertainment America
www.us.playstation.com

Metal Gear Solid 3: Snake Eater

Hideo Kojima's hit espionage action series goes old-school in the third installment, dubbed Snake Eater. Set in the 1960s, this prequel of sorts takes the fight against shadowy cabals perpetrating nuclear proliferation out into the jungle. Stealth will play a bigger role than ever, as players learn to adapt to their surroundings using camouflage and their hunting skills.

MATURE 17+ M CONTENT RATED BY ESRB

$49.99
Konami
www.konami.com/usa

Grand Theft Auto: San Andreas

The latest game in Rockstar's popular but controversial GTA series places players in the role of Carl Johnson, a guy pulled unwillingly into gang life when he returns to his old neighborhood and is framed for murder. This will be a candidate for game of the year, thanks to its open-ended gameplay and huge, detailed world, but due to extreme violence and adult themes, it's definitely not one for the kids.

MATURE 17+ M CONTENT RATED BY ESRB

$49.99
Rockstar Games
www.rockstargames.com/sanandreas

Xbox

Fable

Peter Molyneux has designed an accessible role-playing game with an innovative idea. The decisions you make as a child will affect your character as he grows. If all goes well, you'll age and die a peaceful death (or so you hope).

$49.99
Microsoft Game Studios
www.fable-game.com

Halo 2

Master Chief is back in this hotly anticipated action sequel that brings the battle home. Hardcore fans may be interested in the Limited Edition package ($54.99) featuring a bonus DVD with exclusive behind-the-scenes footage.

$49.99
Microsoft Game Studios
www.halo2.com

Dance Dance Revolution Ultramix 2

It's time to warm up your dancing feet. DDR U2 now supports Xbox Live for online dance competitions in addition to a new Work Out mode that lets you track calories and an even bigger music library. If you don't have the dance pad, be prepared to put down $64.99 for the game and dance pad bundle.

$39.99
Konami
www.konami.com/ddrultramix2

Star Wars Knights Of The Old Republic II: The Sith Lords

KOTOR was one of the best games released in 2003. The Xbox version returns just in time for the winter holiday with a story arch that starts five years after the ending of the original game. These games put the most recent two "Star Wars" episodes to shame.

$49.99
LucasArts
www.lucasarts.com/games/swkotor_sithlords

Nintendo GameCube

Metroid Prime 2: Echoes

Samus Aran is back yet again in this follow-up to Nintendo's outstanding 3D hit Metroid Prime. Although she still has the nefarious Space Pirates to deal with, Samus also squares off against a new alien race called the Ing Horde in a classic battle of light vs. darkness.

$49.99
Nintendo
www.nintendo.com

Paper Mario: The Thousand-Year Door

Head back to Mario's colorful world—this time in 2D. As Paper Mario, you can fold your character into a paper airplane or a variety of other useful forms in order to solve puzzles and defeat a mysterious new threat. Bowser and his Koopas are still around to make trouble, as well.

$49.99
Nintendo
www.nintendo.com

Multiplatform

The Lord Of The Rings: The Third Age

The first console-based role-playing game based on the popular Lord of the Rings movies, this game casts you in the role of all-new characters whose paths intersect on occasions with those of Aragorn, Gandalf, and others. Electronic Arts' LOTR games have been very good so far; we're guessing this one will be even better.

$49.99
EA Games
www.eagames.com

Tony Hawk's Underground 2

Make the world your own skate park in the latest installment of this series of insanely popular skateboarding games sporting the name of Mr. Skateboard himself, Tony Hawk. THUG2 sports a wealth of play modes, customization options, and some of the most inventive skateboarding stunts ever seen in a game.

$49.99
Activision
www.activision.com

GoldenEye: Rogue Agent

This first-person shooter is the spiritual successor to the best shooter ever to grace the Nintendo 64: GoldenEye 007. The twist, however, is that this time around instead of playing the role of James Bond, your character is an MI6 agent gone bad and recruited by Auric Goldfinger to wage war against Dr. No. Revisit your favorite 007 locations and characters while taking a walk on the wild side.

$49.99
EA Games
www.eagames.com

. . . & gifts

for every occasion and budget

Keyspan USB Parallel Transfer Cable

Keyspan has made a time machine! And it's only $29! OK, that's inexcusable hyperbole, but the company has made the next best thing for those of us who must put up with relatives' decrepit old PCs. This cable can link an old system with a parallel port to a new one with USB so you can move large chunks of data to a safer form of storage. Sure, it's a rare occasion when you need something like this, but when you do, you do. Check it out at www.keyspan.com.

Newer Technology RoadTrip FM Transmitter

It may look like just a 12V cigarette lighter power adapter, but it's actually a tune transmitter, too. Newer Technology's RoadTrip grabs your personal music player's output and flings it into your car stereo over the 107.7MHz channel. If 107.7MHz normally brings in nothing but "sad FM" on your tuner, as it does in our area, the channel will be no big loss. Certain high-frequency passages above 18KHz may not make the jump, although this may not be an issue if you don't have a top-flight stereo to begin with. The RoadTrip costs $19.99 at NT's exclusive distributor, http://eshop.macsales.com.

TDK 8cm Armor-Plated DVDs

Video pros are hard on media, whether that means tapes or recordable DVDs. Out on a shoot, DVDs can get tossed around, scratched, or left on a sun-blasted dashboard for a few hours. That can mean curtains for all those shots that will never happen again. TDK goes on the defensive with its compact, new Armor-Plated 8cm discs, such as a 2X DVD-R with UV (ultraviolet) resistance ($8.99; www.tdk.com) and a 2X DVD-RW without UV resistance ($11.99). Armor-Plated DVDs also resist scratches, dirt, skin oils, and static buildup.

Excalibur Electronics Digital Projection Alarm Clock

It's rarely enjoyable to wake up in the morning, but a fun alarm clock can ease the pain of emerging from a peaceful slumber. Excalibur Electronics' Digital Projection Alarm Clock ($24.95; www.excaliburelectronics.net/indexNEW.html) displays the time on your ceiling or wall. Point the clock's swiveling projector in the direction of the surface on which you want the time to appear. The clock also features an AM/FM radio and a thermometer. If only the clock could also project the snooze button onto the ceiling, you might actually have a chance of getting to work on time.

discHub

CD-ROMs and DVDs are great for those of us wise enough to use protective disc cases, but maybe you hate fussing over your collections, even though you know that one teensy-tiny, little scratch on the disc's surface can ruin all the audio and video fun. Nope, you have to go and pile unprotected discs around your PC and entertainment system because, well, plastic jewel cases are just such a *pain.* Enter the discHub ($15.99; www.thedischub.com). When you're done with your discs, wedge up to 11 of them into the neoprene membranes lining each slot for super-fast, scratch-free storage.

Saitek Chess Explorer

We'll bet that Bobby Fischer would have appreciated having an electronic travel chess set during his years on the run. Actually, this set says that it's endorsed by Garry Kasparov, the boy wonder from the oil regions of Azerbaijan. Regardless, Saitek's $79.95 Chess Explorer (www.saitek.com) offers adjustable difficulty settings and 64 levels of play, including Tournament and Blitz modes. It's just the thing to while away those long, bleak winters when the vodka threatens to run out. Saitek also sells two new touchscreen models for $49.95 and $99.95, respectively.

NHJ Wearable TV VTV-101

If you're a die-hard sports fan who sneaks a portable TV into games so you won't miss the play-by-play, toss the bulky tube and strap your new NHJ VTV-101 ($199.95; www.nhjapan.com) to your wrist. The 007-style accessory sports a tiny, 1.5-inch color LCD and an even smaller clock/battery level display. The internal battery lasts only an hour, but it includes a pocketable docking station that provides three more hours of game-watching goodness, provided the game is on channels 1 to 12 (VHF) or 13 to 62 (UHF). Unfortunately, you can't use your favorite headset, as the TV's earphones include the unit's integrated antenna.

MP-308 MP3onChannel

Primary Simulation has developed an intuitive device that combines your existing USB pen drive, car FM radio, and cigarette lighter outlet to create a car MP3 player. Although the MP-308 ($65; www.psism.com/mp3onchannel.htm) only plays MP3s, it does accept virtually all USB pen drives. (Exceptions are SanDisk drives with Genesys controllers and Sony drives with Prolific controllers.) Simply plug the MP-308 into your car's 12V cigarette lighter outlet and attach your USB pen drive. Set both your FM radio and the MP-308 to 87.7 and press Play on the MP-308. If there is signal interference, the device can transmit to any unused frequency between 87.7 and 88.9.

Altec Lansing AHS602 Headset

In an ideal world, spouses, small children, and the creepily perfect nuclear family next door would not be bothered by the pounding, thumping audio coming out of your game PC. Should you be forced to keep the explosions and shrieks to yourself, reach for Altec Lansing's new AHS602 headset ($99.95; www.alteclansing.com). They don't offer multispeaker surround sound, but they make do with SRS processing and 40mm neodymium drivers. A mutable mic handles voice duty when you need to bark orders at your online squadmates. Of course, if you wake the wee ones in the next room, you're on your own.

Primera Signature Z1 CD/DVD Printer

Ever since the first CD/DVD printers appeared, we've wished for an affordable model that can put text and graphics on any disc, not just ones with a blank, thermally printable surface. Primera's low-cost Signature Z1 takes us one step closer ($139.95; www.primera.com). This thermal transfer unit can print on four rectangular areas of standard lacquer CDs and DVDs: top, bottom, left, and right. It uses one color of ribbon at a time, but you can swap in a black, red, blue, or green replacement for $19.95 each. The Signature Z1 can print at least 50 discs per ribbon. We still pine for edge-to-edge full color in a single pass, but let us repeat: $139.95.

Sumajin Smartwrap Headphone Cord Manager

Who'd have thought that a little piece of plastic could be so useful? Actually, scratch that. Who'd have thought that a little piece of plastic *that isn't a credit card* could be so useful? Get rid of all the twisties bundling your computer and stereo cables. Step up to the elegantly simple Sumajin Smartwrap in your choice of color (www.sumajin.com). Five bucks seems a little steep for something that looks like a Cracker Jack prize, but if these catch on, look for cheap imitations at $5 a bagful.

Magellan SporTrak Map

No matter how good your home theater setup is, everyone needs a little sun now and then. Whether you're an accomplished explorer or someone who consistently gets lost at the local mall, the SporTrak Map ($249.99; www.magellangps.com) is the perfect traveling companion. This handheld GPS receiver is well-protected in a waterproof shell and includes support for WAAS (Wide Area Augmentation System) for accuracy within three meters. The SporTrak Map includes a 2MB nationwide map showing major highways, waterways, and airports. Users can load street-level maps into 6MB of available memory.

Laser Ball

So you think you can toss 'em like the big leaguers? The regulation size and weight Laser Ball features hand-sensing technology, which tells the ball when it is being held and when it has been let go. The Laser Ball ($29; www.laserballs.com) displays your throwing speed on a built-in digital screen, anywhere from 20 to 120mph. You can also order balls that record speeds in kilometers per hour. Available in either baseball or softball form, the Laser Ball can add new life to the old game of catch for adults and Little Leaguers. Just don't use your Laser Ball for batting practice.

Retroscope

marconi's masterpiece: the history of radio

Once a rich person's toy and a tinkerer's delight, the radio has become ubiquitous in modern life. From home to car to coffee shop, it is nearly impossible to go anywhere today without seeing or hearing a radio.

In fact, today it is possible to listen to exactly the same radio broadcast no matter where you are nationwide, thanks to the advent of satellite radio three years ago this month.

Yet more than eight decades after it gave rise to the broadcasting industry in America, the radio now bears little resemblance to its earliest forebears. And even greater changes are on the way.

The Birth Of Radio

Long before radio broadcasting began, radio technology emerged in the late 1800s in the form of a wireless telegraphy technology that could be used to send a message across the world.

The German physicist Heinrich Hertz was the first person to discover the existence of radio waves. In 1888, Hertz discovered that an electrical spark could be made to travel over a distance of 5 feet within an electromagnetic field, evidence that an electromagnetic wave could travel in a straight line and be detected.

Hertz's work inspired the Italian physicist Guglielmo Marconi, who in 1894 conducted his own experiments with radio waves and succeeded in increasing the range the waves could travel to 1.5 miles. By 1896, Marconi was able to increase the range to 9 miles, and he filed his first patent in June of that year. One year later, Italian warships used Marconi's system to communicate at distances up to 11.8 miles. Marconi's successes led him to form the Wireless Telegraph and Signal Co., Ltd. And to further adoption of his system in America, he formed the American Marconi Company.

The next big technological breakthrough in the evolution of radio was in 1901 when Marconi succeeded in receiving in St. John's, Newfoundland, a wireless telegraph signal sent from Cornwall, England, which proved that radio waves could span the earth.

In the fall of 1906, the American inventor Lee De Forest devised the Audion three-element electronic vacuum tube, which amplified the radio wave signal, notes Alex Magoun, executive director of the David Sarnoff Library in Princeton, N.J. Using the Audion, De Forest experimented with broadcasting music and speech in the New York City area in 1907, although Reginald Fessenden had already given the first broadcast of a radio program on Christmas Eve 1906, which consisted of music, a poem reading, and a monologue.

During the next 15 years, thousands of amateur engineers built their own radios using vacuum tubes or crystal sets. These radios were used to listen to both amateur radio broadcasts and also to commercial radio stations.

Products Proliferate

The first brand-name radios for consumers also hit the market in the 1920s. Among them were radios from the RCA (Radio Corporation of America), which introduced its first line of radios named Aeriola in 1921 under the direction of David Sarnoff. Fifty thousand Aeriolas were sold in the first year, Magoun says. By 1925, he says, revenue from home radio sales was $500 million.

There were between 100 and 150 brands of radios in the 1920s before the Great

Depression put most of them out of business, says Jack Wayman, a spokesman for the Consumer Electronics Association who began his career in the industry in 1947 selling radios at retail. Back then, radios were the size of tables and cost as much as $500, and that made them a rich man's toy, Wayman says. Many people built their own radios with parts they bought directly from stores, he adds. The first console radios with built-in acoustic speakers were introduced in 1925, and radios combined with phonograph players debuted in 1928.

Competition among radio makers heated up. Philco started selling smaller tabletop radios in a new "cathedral" or "tombstone" style and became the leading radio seller in the 1930s, Magoun says. Prices for such radios dropped to $10 by the end of the 1930s, down from $75 at the start of the decade.

Up to the early 1930s, all radios worked with AM (amplitude modulation) technology. But in 1933, Edwin Armstrong, a major shareholder in RCA, patented wideband FM (frequency modulation) technology, which offered greatly improved audio quality.

The next major radio innovation was the transistor, which AT&T patented in 1947, Magoun says. That led to the first transistor radio demonstration in the United States by RCA in 1952, he says, adding that Regency introduced the first transistor radio anyone could buy in the United States in 1955. By the late 1950s or early 1960s, Magoun says, inexpensive transistor radios made in Japan were ubiquitous.

In 1960, Harman-Kardon introduced the first high-fidelity, or Hi-Fi, FM radio, and other manufacturers including McIntosh and Fisher followed. It was in the 1960s when FM finally caught on in the radio broadcasting industry. By then, consumers were buying 85 million radios per year, Wayman says.

So-called boom boxes—luggable stereos—were introduced in the early 1970s, with built-in AM and FM tuners and audio cassette players.

Of course, AM and FM are analog radio technologies. The newest developments are in the arena of digital radio technologies—specifically, satellite radio and HD radio. Both of these newer technologies distribute radio channels to compatible radios as a stream of digital data bits, which the radios interpret as sound.

Unlike other forms of radio, satellite radio broadcasts a channel nationwide. By comparison, HD and other radio broadcast technologies are local or regional.

The first satellite radio vendor was XM Satellite Radio, which began broadcasting and selling radios in November 2001. The second was SIRIUS Satellite Radio, which debuted with broadcasts and radios in July 2002.

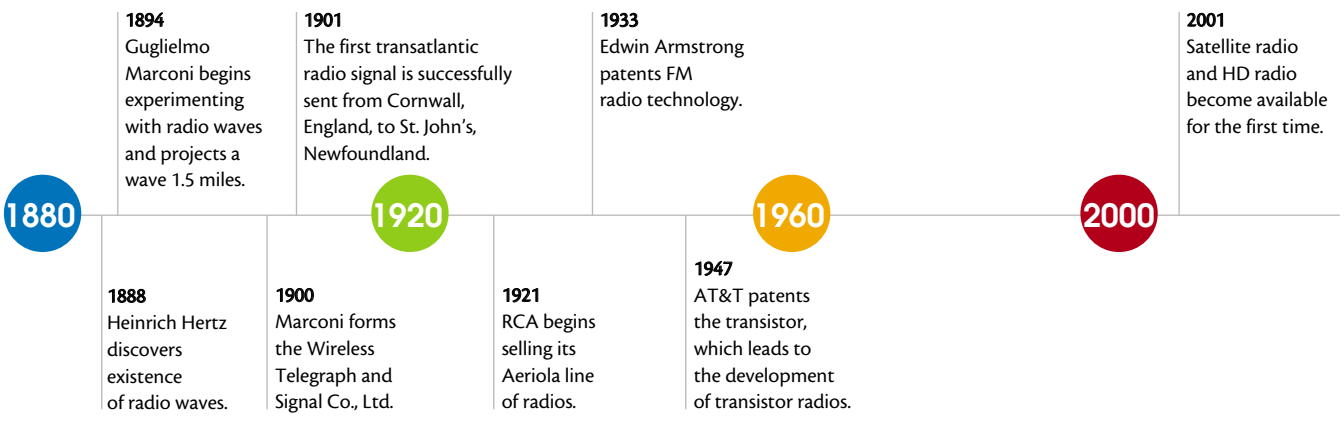
The FCC authorized only XM and Sirius to broadcast satellite radio channels in 1997. Both offer more than 100 channels of digital radio through their systems to listeners, who must be subscribers. At the end of June, 2004, XM had 2.1 million listeners, and the company forecasts that it will have 3.1 million by the end of this year. SIRIUS had 500,000 listeners as of July, 2004, and expects to have 1 million by the end of this year.

HD radio emerged in 2001. It lets analog radio broadcasters use a portion of their existing radio spectrum for a digital stream, which contains a better-sounding version of the analog broadcast. But HD radio has not been widely adopted by broadcasters or consumers, says Wayman.

Not Just Audio Anymore

Today the evolution of the radio continues. Satellite and HD radio both are capable of transmitting data, as well as sound, and both XM and SIRIUS already display scrolling stock quotes and sports scores on their radio displays. At the 2004 Consumer Electronics Show last January, both demonstrated how their satellite radio systems could be used to broadcast video, as well as audio. And by the end of 2004, XM is launching a live, video-based traffic alert and navigation system, named NavTraffic, for cars equipped with its newest satellite radio technology.

BY ROBERT E. CALEM



feeling blue?

blue \blü\ n.: a color ranging in the visual spectrum between the boundary hues of green and violet. Closely associated with soulful music and summer skies, this color also is a favorite with manufacturers of consumer goods. Below are just a few of the popular icons and products that are linked to blue.

Cheat Sheet For The Blues

Products and pop icons that are "blue" include: IBM (aka "Big Blue"); Blu-ray Disc technology (coming soon to a DVD player near you); Smurf (funny-looking cartoon guy); iPod mini (blue version of the digital music player); jetBlue (air carrier); bluegill (fish); blue cheese (yum); Motorola A630 (cellular phone with Bluetooth wireless technology); blue ribbon (4-H, anyone?); blue jeans (the older, the better); Sony Cybershot DSC-P100 (digital camera with blue shell); Toronto Blue Jays (baseball team logo); bluebells (flowers); blue sky; the Windows fatal error screen (aka "the Blue Screen of Death"); Toshiba Satellite A45-250 (notebook PC with blue LCD shell); blueberries (yum); blue moon (as in, "once in a . . . ."); and Frank Sinatra (aka "Ol' Blue Eyes," his signature song let you know he always did things "My Way").

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